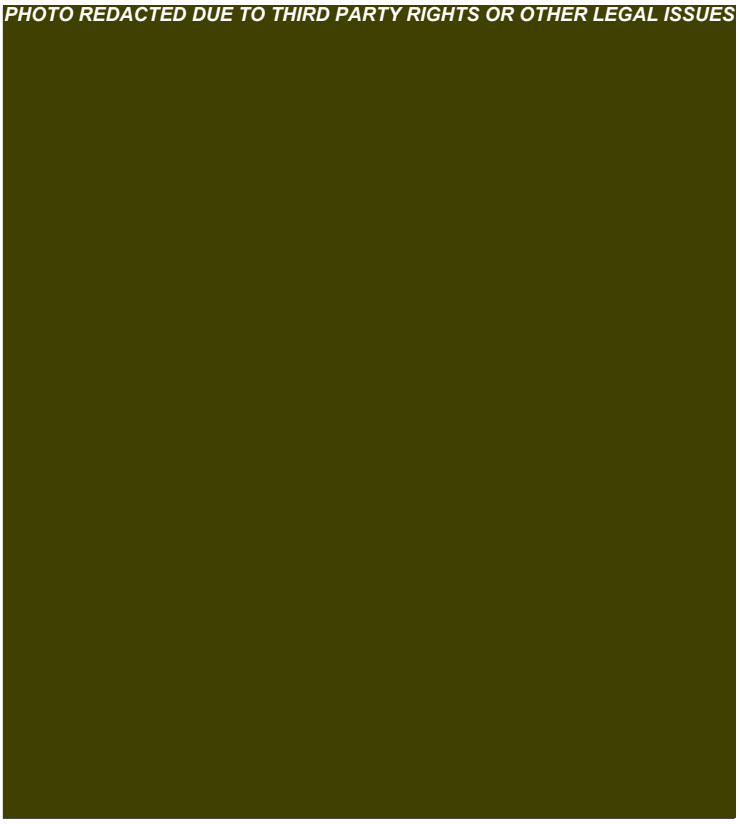


An examination of design education in Brazil; and the value of a design language structural model as a basis for teaching.

Luiz Antonio Vidal de Negreiros Gomes

A dissertation submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy

Institute of Education : University of London
March 1991

This work is dedicated to my beloved wife Ligia, and to my darling children Filipe, Marcela and Gabriel.

Acknowledgment

I would like to thank all those people at the Institute of Education, University of London - IEUL, who gave me full support throughout the fulfilment of my MPhil course, in special the assistance of Dr.Maria Figueiredo-Cowen, the Brazilian Lector, the patience and availability of Mr.Lindsay Wakeman, the Computer Service manager, the comments of Dr. Anthony Dyson, and the fruitful tutorials and advise of Mr.David Close, my supervisor.

The love, friendship, moral, encouragement and practical support of my wife Ligia Medeiros were invaluable. The friendship and help of Mr.Rod Leslie, whether in making me understand some aspects of British culture whether helping me to conclude this work deserves my special thanks.

Apart from these personal thanks I would like also to acknowledge the help and friendship of the following people:

Manuel & Olivia Araújo in Minho, Portugal; Antonio Moreno Martinez & Laida Verde Pereira in Galicia, Spain; Mário & Conceição Oliveira, and Levi Galdino & Carla de Sousa in Recife, Brazil; and Francisco, Carminha & Ann Mary Gomes, Núbio & Rebeca Gomes, Amilton Arruda, Solange Coutinho, Guilherme & Edna Cunha Lima, Paulo Vaz, Carlos Borromeu, Valéria Munk London, Gustavo Amarante Bomfim, Pedro Luiz de Sousa, João Lutz, Joaquim Redig; Hernane & Eloá Chaves, and Miriam and Cristina Chaves.

The support of the Biblioteca Nacional de Lisboa; of the Departamento de Desenho, Universidade Federal de Pernambuco - UFPE, and of the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior- CAPES was priceless.

Contents

Abstract

The past decade has been most promising for the development of a philosophical basis for Design Education in Brazil. The first meeting of directors of Brazilian Industrial Design high schools took place in 1984 in Rio de Janeiro. In 1986 in Brasilia a team of professional designers met, with the aim of evaluating almost 25 years of industrial design education in Brazil. In 1987 the Brazilian ministry of education and culture outlined the domains and approved the content of a new industrial design education curriculum. In 1988 representatives from all the Brazilian design schools met in Florianópolis to discuss, identify and determine guidelines for teaching design and in that same year the new national design curriculum was enforced in all high level Brazilian design courses.

However, analyses of the documents published following these events show that design in Brazil is conceived as an educational practice relating only to the tertiary level and a professional activity restricted to the fields of Graphic and Industrial Design.

The reason why Design in Brazil is often elitist, vocational, and restrictive appears to be related to design educators not realising the full potential of the Portuguese word *desenho*; and therefore, not conceptualising Design as an area of human experience, skill and knowledge that reflects man's concern with the appreciation and adaptation of his surroundings in the light of his material and spiritual needs. In particular, relating to the configuration, composition, meaning, value and purpose of man-made phenomena. Consequently, Brazilian design educators are decharacterising the Portuguese language when, treating matters related to Design, they use English terms and expressions unnecessarily.

Thus, this dissertation examines design language in Brazil; and the importance of an agreed language to develop design education in the country. Chapter I is concerned with the denotations given to the words *design*, *dessin*, *disegno*, *designo*, *diseño*, *deseño*, and *desenho* in their respective languages; and the connotations which the human ability design has acquired within certain European cultural contexts. In Chapter II texts were investigated in order to examine concepts of Design in Brazil, and how Brazilian design educators have understood, discussed and disseminated ideas using written language. Chapter III is based on interviews with Brazilian design educators, and it focuses on the spoken language used by them to express and discuss problems of education in the country.

The contribution of this dissertation to Brazilian design education, can be found in Chapters IV and V, where an attempt is made to: (i) reinforce the meanings and usage of the Portuguese word *desenho*; (ii) create a design terminology genuinely based on Portuguese words; and (iii) build a structural model for a design language, which can be used to reconstruct and evaluate the present curriculum of Brazilian design courses.

Resumo

A década de 80 foi um dos períodos mais promissores para a fundamentação filosófica das diretrizes educacionais do Desenho no Brasil. Em 1984 foi realizado no Rio de Janeiro o primeiro encontro de diretores das escolas superiores de desenho industrial. Em 1986 foi constituído em Brasília o primeiro grupo de trabalho com a finalidade de avaliar os quase 25 anos do ensino superior do desenho industrial. Em 1987 o Ministério da Educação e Cultura fixou os domínios e aprova o conteúdo de um novo currículo mínimo para os cursos superiores de desenho industrial. Em 1988 foi realizado em Florianópolis um encontro nacional para identificar, discutir e determinar as diretrizes do ensino do desenho industrial para os anos 90 e foi fundada a Associação Brasileira de Ensino do *Design*. Nesse mesmo ano o novo currículo mínimo entrou em vigor para todos os cursos de nível superior de desenho industrial no país.

Entretanto, uma análise dos documentos publicados após cada um daqueles eventos demonstra que o Desenho no Brasil ainda é concebido como um prática educacional apenas do nível superior e como uma atividade profissional limitada ao desenho industrial e desenho gráfico. A razão pela qual o Desenho no Brasil é elitista, vocacional e restritivo parece encontrar-se no fato de os educadores do Desenho ainda não perceberam todos os significados e o poder da palavra *desenho* e, portanto, não conseguem conceber o termo Desenho como a área do conhecimento, habilidade e experiência que reflete as preocupações do Homem com a apreciação e adaptação do seu ambiente à luz de suas necessidades materias e espirituais. Em particular, Desenho está relacionado com a configuração, composição, significado, valoração e propósito dos fenômenos do fazer humano. Consequentemente, os educadores brasileiros têm descaracterizado a língua portuguesa quando, ao tratarem de assuntos relativos ao Desenho, usam desnecessariamente termos e expressões inglesas.

Esta dissertação, portanto aborda a Linguagem do Desenho no Brasil; e a importância para a Educação do Desenho de uma linguagem coerentemente estruturada e divulgada. O Capítulo I consiste na revisão das denotações das palavras *design*, *dessin*, *disegno*, *designo*, *diseño*, *deseño*, e *desenho* em suas respectivas línguas, e das conotações que a habilidade humana do Desenho têm adquirido em contextos culturais europeus. No Capítulo II textos foram selecionados e estudados com o objetivo de investigar como os conceitos do Desenho têm sido entendidos, discutidos e disseminados por educadores do Desenho no Brasil através da linguagem escrita. O Capítulo III é baseado em entrevistas realizadas com educadores do Desenho com o objetivo de investigar sua linguagem falada ao expressar idéias sobre o Desenho no Brasil.

As contribuições desta dissertação encontram-se nos capítulos finais onde tentamos reinforçar os significados da palavra desenho; criar uma terminologia do Desenho genuinamente baseada na língua portuguesa; e construir um modelo estrutural da Linguagem do Desenho para servir como base no replanejamento e avaliação dos atuais currículos plenos dos cursos de desenho industrial e gráfico no Brazil.

INTRODUCTION

THE LAND WHERE EVERYTHING THAT IS PLANTED BEARS FRUIT

Déjà Vu

South America, as a continent, stretches south from the Isthmus of Panama to Cape Horn, and those parts where Spanish or Portuguese, as in Brazil, are the adopted national languages are widely known as Latin America.

Brazil has a national land area of 8,511,965 km^2, which represents 47% of the South American total land area, and has the sixth biggest population in the world (almost 150 million inhabitants). It is a country divided into five main geographical regions: North, Northeast, West Central, Southeast and South. Each region has its peculiar climate, geological configuration, traditions, culture and even its own way of speaking Portuguese. For example the Portuguese language spoken in Brazil can be classified, as the *amazônico*(N); the *nordestino* and *baiano*(NE); *fluminense* or *carioca*, the *mineiro* and the *paulista*(SE); and the *sulista* or *gaúcho*(S).

Brazil is a federal republic composed of the following States: Acre (AC), Alagoas (AL), Amazonas (AM), Bahia (BA); Ceará (CE), Espírito Santo (ES), Goiás (GO), Maranhão (MA), Mato Grosso (MT), Mato Grosso do Sul (MS), Minas Gerais (MG), Pará (PA), Paraíba (PB), Paraná (PR), Pernambuco (PE), Piauí (PI), Rio Grande do Norte (RN), Rio Grande do Sul (RS), Rio de Janeiro (RJ), Rondônia (RO), Santa Catarina (SC), São Paulo (SP), Sergipe (SE), Tocantins (TO), Amapá (AP), Roraima (RR); and the Federal District where Brasília is located. All of them are symbolically represented in the Brazilian flag, the design of which, despite having a very romantic history, can provide a clue for the understanding of the first problems of design in Brazil: it is a redesign rather than a design.

The section of the flag illustrated above tells the story of how an observer who stood up at Rio de Janeiro's highest point, on the night of 15th November 1889 (the date of Brazil's Proclamation of Republic) and looked up to the sky would have seen the following stars and constellations: Procyon, Canis Minor; Alphard, Hydra; Sirius, Canis Major; Canapus, Carinae; Southern Cross, Crux; Sigma, Octans; Spica, Virgo; Gama, Hydra; Scorpius Constellation and Triangulum Australe.

Such a stellar configuration inspired Raimundo Teixeira Mendes and Miguel Lemos (his assistant) to design the present Brazilian national flag, which is not very different from the design of the Brazilian Empire flag (1822-1889) designed by the French painter Jean Baptiste Debret (1768-1848): green rectangle as a background to the yellow diamond, which has in its middle the Brazilian Empire Crown. The difference is that, replacing the Empire Crown, there is now a blue circle with the stars and constellations pointed out in the sky on the Proclamation of Republic's night, crossed by a white belt on which it is written in green capital letters "ORDEM E PROGRESSO" (Order and Progress).

The blue circle symbolises the Brazilian sky and the stars represent all the Brazilian States, and the Federal District.

The yellow diamond represents Brazilian natural and economic resources and energy power: (i) iron; ferro-allow metals (manganese, bauxite, nickel, tungsten); base metals (lead, copper, tin); light metals (aluminium, zinc); precious metals (gold, silver, platinum); precious stones (diamonds, emerald, sapphire, ruby); industrial minerals (asbestos, potash, rock salt); (ii) nine hydrographic basins, which produce an estimated hydroelectric power of 160,750 MW/year; and sources of alternative energy such as petroleum, natural gas, coal, uranium etc.

The green rectangle represents the national territory: (i) its smooth

relief; (ii) its rich wood and rain forests with plenty of trees such as *açaí* (*Euterpe oleracea*), *seringueira* (*Havea brasiliensis*), *cacaueiro* (*Theoborno cacao*), *açacu* (*Hura crepitans*), *mogno* (*Swetenia macrophylla*), *pau-rosa* (*Ariba roseadora*), *cedro* (*Cedula fissilis*), *peroba* (*Aspidosperma polyneuron*), *jacarandá* (*Machaerium villosum*), *palmito* (*Euterpes edulis*); (iii) its livestock and agriculture potential (coffee, soya, sugar-cane, maize, oats, manioc, cotton, cocoa, nuts); (iv) its industrial park (food processing, chemical products, textiles, metallurgy, vehicles and accessories, electrical and communication equipments etc.; (v) general services, trade and finances; and (vi) an active human working force of 53,236,936 inhabitants from a population of 147,404,375 people.

The official language of the country is Portuguese. However the comparison of Brazilian Portuguese, written and spoken, with the Portuguese from Portugal shows many grammatical differences as well as an obvious difference in accents. These linguistic phenomena have already brought about meetings of scholars from the seven nations where the official language is Portuguese - Angola, Brazil, Cape Verde, Guinea Bissau, Mozambique, Portugal, and San Tome and Principe - in an effort to standardise it. However, year after year, such uniformity and reconciliation of the different aspects of the language becomes more difficult to achieve mainly because of the specific ways in which each social group and sector within the ex-colonies of Portugal teach, use and develop their national language.

The true dimension of this problem can be illustrated by some Portuguese accounts that say that when they are reading a book issued in Brazil, they are aware that there are grammatical errors in the text, and indeed some everyday Brazilian Portuguese words are not understood by them. The same happens with Brazilians who tried to read books issued in Portugal. For instance, some of my students when studying design history through the Portuguese versions of Pevsner' books, issued in Portugal, complain about the way the text is presented. These facts are the main reasons why, when I have to keep in touch with any Portuguese educational institution, I usually ask a Portuguese friend to adapt the text of my communication into current Portuguese usage, in order to avoid any misunderstanding.

If we look more closely at the Portuguese spoken in Brazil, there are a number approaches to try to explain the peculiarities of the way in which Brazilians have developed that language. One is related to the high number of illiterate people in the country. According to Arto Lindsay's introductory essay in the musical collection Brazil Classics 1 (compiled by David Byrne for EMI Records in 1988) 'it was not until

the second half of the 20th century that the majority of the population still lived below the poverty line and was illiterate. Perhaps that fact contributed to the importance of oral traditions in Brazil. Brazilian Portuguese is constantly evolving, and its speakers maintain a very basic relationship with it. However, despite the poverty and isolation of much of Brazil, the literate portion of the population is exceptionally informed. They have an acute awareness of cultural developments in the rest of the world.'

Another example is that during the last general election to elect mayors of the capital city of each Brazilian States it was unofficially estimated that 70% of the electorate had never completed even the primary level of education. This suggests the majority of Brazilian population's learning and usage of language is mainly through oral means; and that the foundations of the Brazilian Portuguese language as well as its basic structure are totally unknown for them. Furthermore the rudiments of the language have been altered and many idiosyncrasies have been created which bear no relation at all to the official teaching of Portuguese language. However, such a way of language development is pacifically accepted by the Brazilian government itself, because it seems that Brazilian Portuguese language is perfectly suitable as a means of communication.

Another approach is concerned with the behaviour of the part of the Brazilian population which is literate and educated, and which seeks to emphasise economical, intellectual, religious, racial or whatever aspect of their social status usually through the use of snobbery, elitist, and pedantic written and spoken language with plenty of words and expressions not very colloquial in current Portuguese e.g. the French term *vernissage*, when in Portuguese there are suitable words which can be used to express that idea. On the other hand the economically less-favoured social classes also have their own specific oral communication which is full of slang, rude jargon and grotesque grammatical mistakes, and which they use to emphasise their social status and the poor situation of the environment in which they live (usually in the city peripheries also known as slums).

Another approach pertains to the Brazilian ethnic population which basically is composed of three distinct races: the Caucasoid (from the Iberian Peninsula); Negroid (from the West Africa and Togo); and native American Indians (*Tupis*, *Guaranis* and *Tupuias*). Such ethnic groups, beyond having cross-bred their races (a fact which generated three new racial groups such as *Mulatos* (Caucasoid with Negroid), *Cafusos* (Negroid with native Indians), and *Caboclos* (Caucasoid with Native Indians), enriched the Portuguese language, originally brought

by the Portuguese Pedro Alvares Cabral and his fellow sailors to Brazil on the 22nd April 1500, with many words and expressions from distinct languages such as *Ioruba* or *Nagô* (from Africa); and *Tupi*, *Tupi-Guarani*, *Gaurani* and *Jê*, the languages spoken in Brazil before the arrival of the Portuguese.

To increase the differences between the Brazilian Portuguese language and the Portuguese from Portugal, in 1808 a historic event happened which would enrich further the Brazilian Portuguese language vocabulary: the Portuguese Royal Family arrived in Brazil escaping from the invasion of Portugal by Napoleon Bonaparte. One of the D.João VI's, King of Portugal, first acts was to give permission to the Brazil Colonial Government (1500-1822) to hand over lands all over the country to foreigners, thereby marking the beginning of the spontaneous immigration to Brazil. Nevertheless, such a process of immigration was significantly intensified only when the slave traffic was prohibited (1850), and when slavery was abolished (1888) in the country. Since then Brazil has seen the arrival of the Germans (1830), Austrians (1884), Koreans (1960), Spanish (1580 and 1841), Italians (1957), Japanese (1908), Portuguese (1884), Russians (1903), Polish, Lebanese, Americans, French, Syrians, Hungarians, English and others.

The fact of the matter is that the Portuguese language spoken and written in Brazil nowadays is very different from the Portuguese from Portugal, and, perhaps, richer in terms of vocabulary. Therefore, it would not be surprising if we find in Brazilian Portuguese dictionaries, hundreds of foreign terms adapted to Portuguese language: *ateliê*, from the French *atelier*; *grogue* from the English *groggy*; *dacha* from the Russian *datcha*; *canhão* from the Spanish *cañon*; *chávena* from the Chinese *chã-kuan*; *zuarte* from the Dutch *zwaart*; *caqui* from the Japanese *kaki*; *chocrute* from the German *sauerkraut*; *oxalá* from Arab *wa xá illah*, and even *gude* from Portuguese *gode*. But this lexicographic aspect does not refer only to giving Portuguese form to those foreign words, that is to say the orthographic level.

The present Orthographic Brazilian Portuguese Vocabulary is based on the Orthographic Vocabulary of the Portuguese Language from the Lisbon Academy of Science, which was issued in 1940, and was approved unanimously by the Brazilian Arts Academy on 29 January, 1942. That vocabulary should rigorously obey 12 items, or rules. The *Item 2* should be emphasised: inclusion of foreignisms and neologisms of current usage in Brazil and necessary to the literary usage. However many foreign words included in the Brazilian Portuguese Orthographic Vocabulary did not suffer morphological change yet e.g. *baby*, *call-girl*, *marketing*. On the other hand some

foreign terms had recently their original morphology changed because their meanings were partially or in full changed. Let us take the example of the English word zoom, which recently was incorporated into the Brazilian Portuguese Ortographic Vocabulary. The Collins Dictionary gives the following denotation for it:

> **zoom** (z:um) vb. 1. to make or cause to make a continuous buzzing or hunning sound. 2. to move or cause to move with such a sound.3.(intr.) to move very rapidly; rush: we zoomed through town. 4. to cause (an aircraft) to climb briefly at an unusually steep angle, or (of an aircraft) to climb in this way. 5.(intr.) (of prices) to rise rapidly. ~ n. 6. the sound or act of zooming. 7. See **zoom lens**. Zoom lens n. a lens system that allows the focal length of a camera lens to be varied continuously without altering the sharpness of the image.

However, if we take a Brazilian Portuguese dictionary one will find the following denotations for the word zoom, which into Portuguese become *zum*.

> -> **zoom** (zum) [Ingl.] S.m. V. zum
> **zum** [Do Ingl. zoom] S.m. 1. Conjunto de lentes cujo alcance focal pode ser continuamente ajustado para fornecer vários graus de grandeza sem perda de foco, commbinando, assim, as características de uma lente de grande abertura, de abertura normal, e telefotográfica. 2. O efeito de aproximação produzido por esse conjunto de lentes, em cinema e televisão.

Comparing the English and Portuguese denotations for *zoom* we can notice that: (a) the first Portuguese denotation given is only related to what the Collins dictionary denotes to *zoom lens*; (b) the second Portuguese denotation does not fit in any of the previous Collins denotations, unless we go further and note that in English there is an intransitive verb (can also be an adverb) *zoom in* or *zoom out* which refers to photography, films, television, to increase or decrease rapidly the magnification of the image of an object by means of a zoom lens.

This suggests that the English word *zoom* was introduced into the Portuguese language, simply because of the appearance in the market of a new kind of product with a new technological feature, resulting from the developments in film and photographic foreign industries, therefore losing its first English denotations. And if we do the same kind of comparison between other foreign words borrowed by the Brazilian Portuguese language one will find a considerable number of identical situations. The word *design* can be taken as an example of this.

Any pocket dictionary English-Portuguese/Portuguese-English says that the Portuguese word *desenho* is the corresponding word to the English *design*, and vice-versa. However, in the *Novo Dicionário da Língua Portuguesa* (which sold 5 million copies in its second revised and enlarged edition, in 1986), better known by the metonymy *Aurélio* (the editor's name) - both forms *desenho* and *design* appear, suggesting that these two words do not have the same meanings in their respective languages.

The denotations, however, given to *design* in the *Aurélio* dictionary differ substantially from those given by any English dictionary. According to *Aurélio* dictionary *design* is: (i) the concept of a project or model, planning, and the product of that planning; (ii) restricted to industrial design, and visual communication.

With respect to the first denotation, British and American lexicographers would not have much to complain about. On the other hand, it is my belief that most of British design educators would not agree with the second denotation. That is to say, they would not agree that *design* is restricted to industrial design and visual communication. However, it is possible to find the reasons why Brazilian designers and design educators lost their way in the understanding of Design as a wide area of human knowledge. Brazilian design education was officially established in December 1962, with the foundation of the *Escola Superior de Desenho Industrial* -ESDI, in Rio de Janeiro. As the School's name suggests it is a high school of industrial design, and its educational model was strongly based on that of the *Hochshule für Gestaltung*, at Ulm. At the time of the ESDI foundation, the names *Escola Superior da Forma* or *Escola Superior de Desenho* were cogitated but rejected because it was thought that in the Portuguese language there was no word to express properly *Gestaltung*[1] or *Design*. It has been said that the existing Portuguese words *forma*, *concepção*, (which can correspond to the German noun *Gestaltung*) and *desenho* (correspondent to the English word *design*), instead of helping to identify the educational objectives of the school, would confuse the role

[1] **Gestaltung** is a German female noun which can be translated into English as formation, organisation, planning, shaping, conceiving. However, *Gestaltung* also can be understood as Design when it is used as neuter noun. According to Santiago PEY, who wrote the prologue in the Spanish version of Gui Bonsiepe's book *Teoria e Practica del Disegno Industriale* (Milan: Feltrinelli, 1975), *form* is not the best word to represent the meaning of the German term *Gestaltung*. For him such a term has been very badly translated into the Romance Languages. For example, Italians translated it as *proiettacione* (the act or effect of projecting). But for Pey the best meaning for understanding the term *Gestaltung* in Spanish is *concepción+plasmacion* (conception +shaping). In Gui BONSIEPE, **Teoría y Práctica del Diseño Industrial** (Barcelona: GG, 1976), pp.7-12.

of that educational practice in Brazil. Therefore it was decided to use the literal translation of the English expression *industrial design* to name the first high school of design in Latin America. In Brazil, then, nowadays there are 27 educational institutions offering design high courses, most of them carrying in their names, correctly or otherwise, the title *Desenho Industrial*. Nevertheless there are evidences that this term has caused many misunderstandings about the role of Brazilian design education. Brazilian design educators themselves, it seems, have never been completely satisfied with such an expression. This is so true that in July 1988 representatives from all Brazilian design high courses, for the first time, were grouped together aiming to discuss the basis and the role of Brazilian design education in the 1990s. But, once again, the main issue of that important event was basically related to the validity and appropriateness of the expression *desenho industrial*.

Furthermore, an analysis of the main Brazilian written works and documents on design shows that much of the discussion on design principles, practice and education has been unfruitful. A strong reason for that is the lack of an original and agreed design terminology to guide the philosophical basis of Brazilian design education. The existing terminology is confusing, the design concepts are personal and the language used to express design ideas is full of English terms which, not only damage the structure and characteristics of the Portuguese language as a whole, but also highlight how dependent from foreign ideas and approaches Brazilian design educators are.

Surprisingly, there is also evidence that this happens due to one simple point: the lack of understanding of the full meanings of the Portuguese word *desenho*. Having this in mind I have formulated my first hypothesis: - the decharacterisation of a nation's written and spoken language by a group who represent a specific area of knowledge in that nation, can be considered as an indication of lack of originality, identity, and development of that specific area of knowledge in the nation's cultural context. Brazilian design educators have misunderstood the full meanings of the word *desenho*, and as a consequence, they are decharacterising the Portuguese language using foreign terms to express design educational matters. Therefore, the unnecessary inclusion of foreign terms in the Portuguese language to express design ideas may be considered as an indication of the lack of originality, identity and development of design education in Brazil.

Considering that design is about culture, it is obvious that language, written and spoken, is one of the means through which ideas about design may be expressed, communicated, understood, debated and evaluated. That is to say, language is one of the design's principles,

because it is one of the means through which we express how our attitudes towards our environment have changed and evolved in the matrix of particular social, educational, economical and technological circumstances. It is my belief that these circumstances must be considered in the planning of any curriculum, and consequently in the planning of a design curriculum. Language, so, is one of the helpful means to identify, define and sort out priorities, needs and values from the culture of a particular society in the planning of a design curriculum. However, there are evidences, for instance, that the fact that Brazilian students have not developed their design language in the primary and secondary levels of education was never considered in the planning of the Brazilian national design curriculum for the high level design courses.

Having this statement in mind I formulated my second hypothesis: curriculum planning is the way in which educational priorities and objectives are decided and put into practice. The idiosyncratic way Brazilian design educators have used Portuguese language is the main reason why there is not yet a consensus about a design language structure nor a basis to the planning and evaluation of the existing design curriculum. Therefore, the confusing Brazilian written and spoken language used to express design concepts, is the main reason why design educational objectives and priorities were not yet clear cut and decided and, consequently, impossible to put into practice through the national design curriculum.

This work, then, examines the way in which Brazilian design educators have written and spoken about design concepts and how their language has been reflected in the design education as a whole and in particular in the planning of the design curriculum. It is also attempted to build a basic design terminology in order to define a concept for Brazilian design education, and to introduce a design language structural model which aims to be used as a basis for design curriculum planning and evaluation in Brazil.

In composing this thesis I have considered four specific fields of study: the background theory, the focal theory, the data theory and the contributions. The background theory - Chapter I - is concerned with (i) the denotations given to the words *design*, *dessin*, *disegno*, *designo*, *diseño*, *deseño*, and *desenho* in their respective languages; and (ii) the connotations that Design, as a human ability, has been coined by some outstanding art and design educators from the late Middle Ages up to the present time. The objective is to organise a linguistic material in order to support the core of my arguments: Brazilian design educators have never resorted to the simplest and most obvious sources to learn

and understand what Design is about, and what has been the role of Design Education for particular cultural contexts of western societies.

In the focal theory - Chapter II - I focused on the written language used by Brazilian design educators in order to present and establish the nature of the problem I have been researching i.e.what design has meant to Brazilian design educators. For the first section I have selected two theses and two books, covering a period from 1967 to 1988. The first thesis presented regards the importance of design to craft. The first book looks at the first attempt to conceptualise design in Brazil. The second thesis discussed is about a proposal towards a national curriculum for the Brazilian industrial design courses. And, to close the first section, I selected another book which deals with contemporary definitions of design in Brazil. For the second section I have resorted to a set of Brazilian open letters on design released during and after the design educational meeting which took place in July 1988, in order to show how confusing and superficial the discussions about design terminology in Brazil are.

Whereas in the first and second chapters I used the literature review as a research technique, in Chapter III, I used the interview technique as the main media to collect the data to compose the four sections of the chapter. That is to say I discuss, based on the spoken language of Brazilian design educators, aspects of (i) design terminology, (ii) design education origin, (iii) national design curriculum, and (iv) the main problems which worry educators from the design courses at the *Universidade Federal de Pernambuco* - UFPE, Recife, Brazil. Institution which I chose to apply the design language structure model, suggested in the Chapter IV, as a basis of evaluation of the present UFPE design curriculum.

The chapters concerning my contributions are the Chapter IV and Chapter V. The former is introduced assuming the existence of a third area of human knowledge called Design which, together with Science and Humanities, and that those three areas must compose the philosophical basis of any educational system. Design is an important means of human expression which, like written and spoken language, has a structure to be considered and developed. Therefore, Chapter IV deals with a proposal towards a design language structural model, and exemplifies how that model can be used for planning a design curriculum. Chapter V, on the other hand, is introduced alerting that the lack of design education in the basic levels of schooling and the ill planning of a design curriculum for the third level of education can cause contemporary people to develop a syndrome generated by their general lack of experience, skill, creativity and understanding towards

the appreciation and adaptation of his environment in the light of his material and spiritual needs. I also attempt to evaluate, using the design language structure model, the present UFPE design curriculum.

Despite the fact that this work is mainly addressed to Brazilian design educators, I am convinced that it can be taken by others as a good example of how the lack of a precise and agreed terminology can bring about serious educational problems.

CHAPTER I

DENOTATIONS AND CONNOTATIONS OF THE WORD DESIGN

The charismatic English word design

Certainly this work is not the first, nor will it be the last, which is introduced with comments about the widespread, always fashionable, and charismatic English word design.

Nowadays the word design has been absorbed by many different cultures around the world, and in this process of assimilation by distinct languages, design has quite often acquired many other meanings. However, sometimes, these new meanings are very removed from the original.

When this happens, in linguistic terms, there are not many problems because each particular culture has its own characteristics which usually differ from the cultural context where the imported term originated. But, if a foreign term is introduced in a particular language, and loses, in part or totally, its native linguistic essence, this means that the original morphology of the foreign term is no longer relevant.

Around the late fifties the English word design was introduced in Brazil and since then it has become widely used throughout the country, largely by those engaged in the fields of fine arts, craft, technology, design, and by the media in general. However, in Brazil where those who frequently use the foreign term design are supposed to know its English denotations very well, those same people do not seem to know most of design educational and philosophical connotations. That is to say Design in Brazil has seldom been regarded, for instance, as a "fundamental attribute of human beings..., like language ability, that everyone possesses at least to some degree."[1]

[1] Ken BAYNES and Phil ROBERTS, *Design Education: the basic issues.* In Richard LANGDON et alii (Eds.) **Design Policy: Design Education** (London: The Design Council, 1984) pp.8-13.

At first sight, an analysis of Brazilian design practitioners and educators written discourse induces one to think that in Brazil design has been understood as a professional activity "highly specialist, complex and esoteric that particularly the act of designing is something which people can do only after a long apprenticeship."[2] However, a study of the Brazilian design education situation suggests that it is premature to make such an assertion. Actually, there are evidences that Brazilian design educators have not found yet suitable room to develop design education as a whole. They still face many difficulties in discussing properly design educational priorities and aims, because of the general lack of understanding about the Portuguese words *desenho*, *desenhar* e *desenhador*, and therefore the lack of association of these words with their English correspondents *design*, *to design*, and *designer*.

Some have argued that the design education problems in Brazil lie in the fact that, unlike the English idiom, the Portuguese idiom has no expression to identify the full meanings of design. Others would suggest that it is a question related to the poor translation of the **word** design into the Portuguese idiom generating misinterpretations of the **concept** design into the Brazilian cultural context of the early sixties.

It becomes apparent, them, that these questions have not been yet adequately addressed. In order to contribute to a better understanding of this matter, in the first section of this chapter, I present the denotations of the words *design*, *dessin*, *disegno*, *designo*, *diseño*, *deseño*, and *desenho* in their respective languages aiming at showing how similar the morphology and the semantic of these terms, and their relatives, are. The ultimate aim, beyond offering a linguistic material for those interested on that matter, is to prove that *desenho* is design.

In the second section, I have resorted to other basic aspect which must be considered when one wants to understand a linguistic term as a whole: the connotations. So, to complete Chapter II, I described some aspects of the cultural context where some western art and design educators have connoted design, as a human ability. The objective is to show that if, at least, those who have lead the Brazilian design education had understood Design as skill and technique; invention, imagination and creativity; shaping and modelling; technology; geometry and functionality; planning; and project it would be enough to identify priorities and establish the basis of a simple, but effective and original, Brazilian design education.

---

[2] Ibidem.

English denotations for *design*

Languages are always in a state of flux. Change affects the way people speak as inevitably as it does any other area of human life. Language purists do not welcome it, but they can do very little about it. Language would stand still only if society did.

During the greater part of the 19th century, linguistic scholarship used a way of systematically comparing a series of languages in order to prove a historical relationship between them. The comparative method helped to establish the facts of language change.

All aspects of language structure and use - for example sound, grammar, semantics - are subject to change, but the most noticeable and frequent changes affect pronunciation and vocabulary, and it is these which have attracted most study. However, semantic change is perhaps the most obvious area of linguistic change, and the one which many people find the most fascinating.

Semantic change[3] is profoundly connected with the life, literature, and culture of a community. Innumerable examples can be found in the pages of any old book, or simply by careful watching and listening to every day usage.

The two most important factors in semantic change are the arrival of new words and the loss of the old ones. In most languages, the vast majority of new words are in fact adoptions from other languages. Adopting proceeds in all directions.*Weekend* and *parking* have been adopted by French from English; *chic* and *savoirfaire* have been appropriated by English from French.

A special type of adopting is known as a loan translation or calque. In this process, a word is not appropriated whole, but its part are translated separately and a new word formed - as when German produced the equivalent of English *telephone* in *Fernsprecher* (literally, *fern* - distant + *sprecher* - speaker).

Whether a language will borrow a word whole, or translate its parts, is never predictable. For example, as the words *girlfriend* and boyfriend spread from the west to east, they were handled differently. The Chinese loan translated the words as *nan pengyu* (literally male friend) and *nü pengyu* (literally female friend). The Japanese, however,

[3] According to David CRYSTAL, **The Cambridge Encyclopedia of Language** (London: Guild Publishing, 1988) p.330, there are six types of language semantic change: a) **Extension** - a word widens its meanings; b) **Narrowing** - a word becomes more specialised in meaning; c) **Shift** - a word moves from one set of circuntances to another; d) **Figurative use** - a shift in meaning based on an analogy or likeness between things; e) **Amelioration** - a word loses an original sense of disapproval and; f) **Pejoration** - a word develop a sense of disapproval.

took the words as wholes, adapting them to their sound system: the result was *böifuendo* and *gärufuendo*. It was from a similar loan translated borrowing that the English language introduced into its vocabulary the word design.[4]

The earliest forms of the English word design were 'deseigne', 'disseigne', and 'designe'. All of them with their source in the old French forms 'desseing' and 'des(s)ing'. As a noun in the 16th century, design already meant plan, scheme, and purpose. In the following century design could be used to mean a plan for a work of art.

The English adopted the same form design to form the verb to design which can be used in the following senses: (1) to point out, to designate; (2) to plan, to purpose, to intend (16th century); (3) to delineate, to draw (17th century). The French form *désigner* influenced the verb to design giving to it the sense of to indicate and to designate. And, from the Latin *designare* it has acquired the senses of to mark out, point out, delineate, depict, contrive. All these meanings derive ultimately from the Latin form *designo*, but sense 2 has been effected by 'design' as a noun and by the archaic French 'desseigner'. Sense 3 derives from French *dessiner* and old French 'dessigner' - an alteration of 'desseigner' from the old Italian 'disignare'.

Nowadays the English verb *to design*, as a intransitive verb, means to work out the structure or form of something, as by making a sketch or plan; to plan and to make something artistically or skillfully; and, as transitive verb, it means to invent, to intend, as for a specific purpose; to plan. As a noun *design* means a plan or preliminary drawing, the arrangement, elements or features of an artistic or decorative work; a finishing artistic or decorative creation; the art of designing; a plan or project; an intention; purpose. The form *designs* often followed by *on* or *against* means a plot, often to gain possession of something by illegitimate means. The expression *by design* means deliberately.

The form design, so, was the root to the adjectives *designable* (possible to be designed), *designed* (planned, intended), and *designing* (artful and scheming); the adverb *designedly* (by intention or design; intentionally; on purpose), the the noun *designer*, a person who devises and executes designs as for clothes, machines, etc.; a person who makes artistic designs, patters, or plan of construction; a crafty or scheming person; a person who devises plots, a intriguer.

The fact of the matter is that a simple noun created from a borrowed French term has contributed to enrich the English vocabulary with other nouns, verbs, adverbs, adjectives and it is still contributing to the creation of new words which are not yet in English dictionaries: for

[4] Adapted and some parts compiled from D. CRYSTAL op.cit., pp.328-333

instance the adverb *designerly* [5] (please see Appendixes #1 and #2).[6]

French denotations for *dessin*

Unlike the French language, English is a Germanic language according to the genetic method of classification.[7] But from other points of view English displays many similarities with Romance Languages in view of the large number of loan words it has taken from French and Italian. However, it seems that not only in English this happens. French language also borrowed from the Italian the source for its words *dessein* and *dessin.*

Around 1400 the early French forms 'desseigner' and 'des(s)iner' were influenced by the Italian *disegno* to form the present *dessein* which can be used as synonym of: enterprise, plan, project (Je poursuis un dessein que j'ai tout entier dans l'esprit). It also means intention (Qui peut pénétrer les desseins de ce souverain qui tient sa cour sur la mer inconsistante?) and; conception, aiming, design (Avoir des desseins sur chercher à obtenir). As an adverbial locution - *à dessein* - means: with a precise intention (C'est à dessein que ce travail a été laissé inachevé) and has as synonym the word expression. In modern French literature *dessein* is a male noun which has the following meanings: decision; a working plan; foresight, wisdom; conjecture; good intentions; with intention of; with a well defined intention; with a deliberate purpose.

In the second half of the 17th century the French transitive verb *dessiner* appeared. Its form was based on the Italian *disegnare* and Latin

[5] Ken BAYNES, *Designerly Play.* In Anthony DYSON (Ed.) **Art and Design Education: heritage and prospect** (London: IEUL/Bedford Way Papers n.14, 1986) pp.64-72. And

Ken BAYNES, *The Basis of Desigernly Thinking in Young Children.* In Anthony DYSON (Ed.) **Looking, Making and Learning** (London: Kogan Page/IUEL, Bedford Way Papers n.36, 1989) pp.70-85.

[6] Sources: **The Little Oxford Dictionary of Current English.** (Oxford: Clarendon Press, First Edited by George Ostler-1930. Sixth edition-1986, edited by Julia Swannell, Eighth reprint 1990) .

The Collins Dictionary and Thesaurus (London & Glasgow: Collins, Managing Editor William T. McLeod 1987).

The Penguin English Dictionary (Harmondsworth: Penguin Books, compiled by G.N. Garmonsway. First Published in 1965. Third Edition 1979, Reprinted 1980).

[7] There are two main ways of classifying languages: the genetic and the typological. Both are used in contemporary language work, but the former has received far more investigation, and has the better developed procedures and frame of reference. Genetic classification, so, is a historical classification based on the assumption that languages have derived from a common ancestor. It uses early written remains as evidence, and when this is lacking, deductions are made using the form of the present language to be reconstructed.

form *designare*. And since then the form *dessiner* has these meanings: to draw; to design (dessiner une maison. Ingres dessine admirablement bien); to mark; to underline, and (fig.) to emphasise; and to stress. (Un vêtement qui dessine bien la taille); (1803) to trace, indicate (dessiner un caractère). As a pronominal verb the form *se dessiner* (1808) - appears in the following senses: to come out; to come off; to stand out against and to grow away from (les collins se dessinent à l'horizon); to sketch; to begin being detectable.

Actually *dessiner* was directly derived from *dessin* a form introduced into French vocabulary at the same period as *dessein* was. So, the male noun *dessin* acquired the following meanings: arrangement of lines representing beings or things; drawing with charcoal, nib etc.(un enfant qui fait dessins sur ses cahiers. Un dessin au fusain, à la craie, à la plume); the art of drawing (École de dessin. Il apprend le dessin); arrangement of the graphic elements in painting (in oppositon to colouring); outline, countor; arranging the lines; disposition of the parts of a work (Le dessin est la loi primière de tout art); *les arts du dessin*: architecture, sculpture, painting, engraving, drawing; some specific drawing technique as for instance *dessin industriele* which means drawings of machinery and mechanical parts; *dessin géométral* or *linéarie* - drawings made by ruler and compass; *dessin à main levée*, free-hand drawings.

In 1664 the French forms *dessinateur* (male) and *dessinatrice* (female) appeared in some texts referring to: drawer, designer, cartoonist; one who knows how to draw; one who usually make drawings, and; professionals who design to architecture and industry. *Dessinateur industriele*, draughtsman (please see Appendixes #3 and #4).[8]

Italian denotations for *disegno*

It was not by chance that the Italian word *disegno* was the source of the French *dessein* and this, in its turn, the origin of the English word design. If one consults the *Grande Dizionario della Lingua Italiana* one will certainly find the reason why. In that dictionary there are no fewer than nineteen denotations for *disegnare*; nine for *disegnato*, five for *disegnatore*, and twenty three for *disegno*. We can also find words like *disegnaménto*, *disegnante*, *disegnataménte*, *disegnativo*, *disegnatório*, *disegnatura* and *disegnazione*; and a number of literary references with their respective authors all of which clearly indicates that since the very

[8] **Dictionnare de la Langue Française** (Paris: Larousse, 1975) p.509. **Dictionnaire des Synonymes**. (Paris: Presses Universitaires de France, 1961) p.86.

beginning of the Middle Ages in the Italic Peninsula Craft, Applied Arts[9] and Art in general were a matter of deep concern.

From the Latin *designare* the Italians introduced into their lexicon the words: *designare*, used to mean designate, appoint, indicate somebody to some duty; *designato* which means appointed, designated; and *designazione* in the sense of designation.

Also derived from Latin *designare* and *disignum*, are the transitive verbs *disegnare* (old 'desegnare'), which means to represent with pencil, pen, chalk, coal; to draw, sketch; to outline; to describe, indicate, design; to intend etc., and also the forms *disegnatrice* (female) and*disegnatore* (old 'desegnatóre') to refer to a designer or draughtsman.

From 'deségno', a word from an old dialect of the peninsula, the Italian language developed the male noun *disegno* which can be understood in the following senses: the graphic representation of an image, mainly constituted by a linear monochromatic sketch (usual black on white), enriched sometimes by *chiaroscuro* and colour; executed on a flat surface - like sheet of paper, canvas or wall - with pencil, pen or by other means such as pastel, chalk, coal, clay, brush, silver tip etc., with aesthetic, decoration or didactic understanding. With reference to the several techniques of execution it can be: *disegno a tratto or per contorni* - the outline of an object with few details using simple means of representation like lines made by pencils or pens; *disegno per volumi* - the representation of a volume from an object by means of *chiaroscuro* or only increasing the thickness of the object's outline; *disegno per macchie* - drawing the shape of which is determined from the variations of light to emphasize a particular part, and to get essentially a pictorial effect.

"Ma la prima [parte della prospetiva], che sol si estende ne' lineamenti e termini de' corpi, è detta disegno, cioè figurazione di qualunque corpo". **Leonardo**

"Il vero disegno non è altra cosa che l'ombra del rilievo, di modo che il relievo viene a essere il padre di tutti e disegni." **Cellini**

"Si può conchiudere che esso disegno altro non sia che uma apparente espressione e dichiarazione del concetto che si ha nell'animo, e di quello che altri si è mente immaginato e fabbricato nell'idea." **Vasari**

Disegno also is the representation carried out with other graphic

[9] **Applied Arts** is the expression used to describe the design or decoration of functional objects so as to make them aesthetically pleasing. It is used in distinction to fine art, although there is often no clear dividing line between the two. Ian Chilvers et alii, **The Oxford Dictionary of Art** (Oxford/New York : Oxford University Press, 1988) p.22.

and material means, in particular to represent a figurative decoration, ornamental figures, decoration and frieze; the graphic representation of a work to be executed, a sketch, draft, project for a pictorial, plastic or architectural work, machines and tools; models and patterns.*Mettere in disegno* - to make a design, a sketch, a project for a work.*Disegno tecnico* - representation in a flat surface of an object to be built e.g. machines or mechanical pieces in the *disegno meccanico*; wall work in the *disegno architettonico*; furniture, goods and tools to be produced by serial production, but also considering and understanding their aesthetics in the *disegno industriale*. That kind of *disegni* must be followed by all the details necessary to their production (today usually ruled by international conventional symbols and measures) and they are usually carried out in full scale with the help of appropriate drawing instruments and tools like rule, squares, compass, ratio, normograph, technigraph etc. They consist in the representation of the whole object or its parts drawn based on the orthogonal projection method (plan, section, elevation, façade) or in a linear perspective.*Disegno schematico* - representation by means of conventional graphic signals for a device, a machine or system e.g. electrical circuit, in order to facilitate an understanding of how it works.

"Riducendo la vostra macchina artifiziosa al più semplice disegno ch'io possa". **Galileo**

"Disegno... vale ancora figura e componimento di linee e d'ombre, che dimostra quello che s'ha da colorire o in altro modo mettere in opera; e quello ancora che rappresenta l'opere fatte." **Baldinucci**

So far I have just given the translation of three denotations for the word *disegno*. But there are many more e.g: the basic design for a building foundation, for a road; letter, stellar constellation; shape, outline, profile of an object; structure, disposition; an idea for a work of art; imitation, copy, inspiration. *Arte del Disegno* - as artistic form autonomous or part of other more complex art, such as painting, sculpture and architecture; way of designing, expertise in drawing; grace, elegance, composure.*Disegni in aria* - fantastic project, unfulfilled; proposal; impulse; plan of an enterprise; rationing, need, logical connections. *Avere in disegno* - having in mind, project and make; idea; project of a work or object to be executed and built; original intuition, invention; systematic conception of the world; general plan. *A disegno, per disegno, con disegno* : as a precise plan, with a determined target; with intention, bet, highly studied; in a precise direction. *Avere disegno, in disegno*: having intention, proposals,

aspirations, foresee, trend. And even the diminutives *disegnétto*, *disegnino*, *disegnuccio* and *disegnuzzo* (please see Appendixes #5 to #12).[10]

Latin denotations for *designo*

Latin is the main language of the Italic family.[11] It was the language of Rome and of its surrounding provinces, preserved in inscriptions from 6th century B.C., and most systematically in literature from the 3rd century B.C. Other languages of that period include Faliscan, Oscan, Umbrian, and Venetic, spoken in the north east of modern Italy. From the spoken, or vulgar form of Latin, used throughout the Roman Empire, developed the Romance Languages.[12]

Pater noster, qui es in caelis. - Latin
Padre nostro, chi essere in cielo. - Italian
Notre père, qui es aux cieux. - French
Pare nostro, que estau en lo cel. - Catalan
Padre nuestro, que estás en los cielos. - Spanish
Pai noso, que estás no ceo. - Galician
Pai nosso, que estás no céu. - Portuguese.[13]

The main metaphor that is used to explain the historical relationship is that of the language *family* and *family tree*. Latin is the *parent* language, and Italian, French etc. are the *daughter* languages; Portuguese would then called a *sister* language to Galician, Spanish, Catalan and the others. Within the Indo-European family, Proto-Indo-European is the parent language, and Greek (patër), Sanskrit (piter), Latin (pater), Gothic (fadar), Old Irish (athir), Eskimo (ataataq)[14] are daughter languages.

The Latin form *designo* or *dissigno* (the latter better in sense 4) is a

[10] **Concise Cambridge Italian Dictionary** (Cambridge: University Press,1975) pp.83-9. And **Grande Dizionario della Lingua Italiana** Vol.IV (Salvatore Battaglia: Unione Tipografico, Editrice Torrinese, 1961) pp. 649-55.

[11] **Italic Language Family**: Latin; Italian, Sardinian, Rumanian, Rhaetian, French, Occitan, Catalan, Spanish, Galician, Portuguese.

[12] **Romance Languages**: Italian, French, Catalan, Spanish, Galician, Portuguese, Romanian, along with Sardinian, Occitan (in southern France), Rhaetian (various dialects in northern Italy and Switzerland), and Dalmatian, spoken along the Yugoslavian coast, become extinct in 1898.

[13] "**Our father who art in Heaven**..." in some of the Italic Languages.

[14] "**Father**" in the Indo-European Languages.

verb which can be used in the following senses: (1) to mark out, trace out; to describe, designate, define. (2) to mark. (3) to delineate, design, depict, represent by embroidering, weaving etc. Far more frequently, and in general use, it means (4) to point out, mark, denote by speech; to designate; to describe, represent. In particular it can be used in an evil sense to mean (5) to contrive, devise, perpetrate; and in a much more goodly sense to mean (6) to effect, do, accomplish. If we consider the idea of arrangement it can mean (7) to dispose, regulate, arrange, appoint, ordain, nominate, elect, choose.

From *designo* was created the word *designatus* which is usually used in political sense and means elect; a person elected to an office, but who has not yet entered upon it. It can also be used to refer to the office itself and to a child not yet born.

Designo was also the source of: the adverb *designate* - which means distinctly; the nouns *designatio* or *dissignatio* (the latter better in sense 2) which means (1) a marking out, describing, designating; a specification; (2) a disposition, arrangement; the selection, designation to a public office. It was also the source of *designator* or *dissignator* which means: one who regulates or arranges; a regulator; an officer whose duty it was to assign seats in the theatre; a master of ceremonies at funerals; an undertaker; an umpire at public spectacles.

Using another Latin dictionary to check everything described above, we find the same meanings for the Latin words *designo* and its derivations, *designare*, *designaui*, *designatum* etc., clearly arranged however in blocks of senses, showing that, into the passage of time and evolution of the language, meanings were added to the verb when a new necessity arose. The meanings are: (1) to mark out, trace out; to mark; (2) to draw in outline, mark out; (3) To indicate, point out; (4) (of words and other signs or actions, also persons) to indicate, denote, designate; (5) To destine, earmark, assign (for a purpose); (6) to appoint, elect (to magistrate); (7) to order, plan; to scheme, perpetrate.

The Latin form *dissigno* is the common form especially among the examples assigned to sense (7) above where it may, at least in some cases, be the correct form. *Dissigno*, in its turn, was the source of the noun *dissignatio* or *dissignationis* which means plan, arrangement; the office of *dissignator*, this form usually used in Latin in the same sense of *designator* (please see Appendixes #13 and #14).[15]

From the first meanings of the Latin *designo* it is possible to deduce that the semantics of the word is directly related to questions of land and territory demarcation and political affairs. By association of

[15] Sources: **Latin Dictionary** (Oxford: Clarendon Press 1st Ed. 1879) p. 557. **Oxford Latin Dictionary** (Oxford: Clarendon Press, 1971) pp. 525-6 & 556.

ideas, the way that land and territories were contoured and arranged probably involved some kind of drawing, and planning activity. And so, there was a necessity for the creation and use of a new form *dissigno* mainly to refer to the action of ordering, planning, scheming and so on. If *dessignator* was an official who assigned seats in a theatre etc., with the evolution of that activity, the word became associated with a person who was responsible also for planning, arranging, and organising places, messages and devices.

Because of the phonetic similarities between the first two letters of the first syllable [di] of the Latin *dissigno* and of the Italian *disegno* [di], and because of the same significance of the Latin *signo* and Italian *segno* (sign, mark, limit, bounds, target), it is possible to conclude that: the Italian language created a new form *disegnare*, and all other derivations, from the Latin *dissigno*, to differentiate the artistic and technical semantic aspects from *designare* which is directly related to political and bureaucratic matters (the Italian form *designare* has the same morphology and meaning of the Latin *designare*).

But even so the Italian language is not so precise when one wants to differentiate the action of designing from drawing. The French language offers two terms from the same Italian source - *disegno* - in order to differentiate these two aspects of the same human ability: (i) *dessein*, referring to enterprise, plan, project, intention, conception, design etc., and; (ii) *dessin* which means drawing, pattern, design, outline, draft etc.

Despite the fact that English is not a Romance Language, its form design, is the one which, morphologically, is closer to the Latin parent source *designo*. And the phonemes of design's first syllable [dI] are quite similar to the Italian ones *disegno* [di] (different from the French *dessin,* the first syllable of which has the phoneme [de]). These are not the only peculiarities of the English word design: nowadays it is used by most of the main languages spoken around the world to refer to the design professional and educational fields, and to represent Design as an ideology and area of human knowledge.[16] In linguistic terms, this means that a process of revolution must be happening in those places where Design is understood, widespread, useful and established.

[16] For example: The 'Istituto Europeo di **Design**', in Milan, Italy, clearly uses the English word 'design' in its name. And the book "Connaissance du **design** et la créativité planifiée dans l'industrie' (Design Council, 1974), also shows the term 'design' instead the French 'dessin'.

Denotations of the word design in the Iberian Peninsula Languages

When the Romans arrived in the Iberian Peninsula in 3rd century B.C. they met there complex racially cross-bred peoples: Iberos[17], Celts[18], Phoenician, Greeks, and other not clearly identified racial groups, speaking languages which have no known structural or historical relationship to any other language.

However, there are traces of the languages spoken in Iberia (ancient name of Spain) in Roman times: the Ibero or Iberian language spoken in southern and eastern parts of the Peninsula which "may formerly have been used throughout a much wider area of western Europe. Its 28 letter alphabet shows the influence of both Phoenician and Greek alphabets, but for the most parts its history is unclear"[19]; and the Celtiberian language spoken by the people formed by cross breeding between Celts and Iberians - the Celtiberi - "which survives in inscriptions especially in north and east of Spain."[20] However, from both "languages almost nothing was kept in the following Hispanic idioms."[21]

Only in the 1st. century A.D. did the Romans have the whole Peninsula under their rule. In 27 A.D. the Hispanic Province was divided into three regions: the Bética, the Tarraconense and the Lusitânia. Bética was the first region to be assimilated by the Roman civilisation. In the other two regions the process of 'romanisation' was slower: "in the north of the Peninsula, in the lands of Galicia, Asturias and Cantábria the presence of Rome was not felt yet: their inhabitants still kept their ancestors costumes."[22]

Nevertheless, the Roman administrative control of the Peninsula came to an end in 409 following the invasion of heterogeneous Germanic peoples: the Vandals, the Suevos, and the Alanos. "Alanos soon disappeared; Vandals later settled in Bética region, moved in 429 to Africa; and the Suevos settled in Galicia and Lusitânia. In the 6th century they were conquered by one of the most civilised Germanic people - the Visigoth, and Visigoth cross bred with the Romance

---

[17] **Iberos** or Iberian or Kartvelian.

[18] **Celts** : first Indo- European poeple to spread across Europe, speaking a language classified as Common Celtic or Proto-Celtic. D. CRYSTAL op.cit., p.302.

[19] D. CRYSTAL, op.cit., p.326.

[20] Ibidem, p.302.

[21] Celso Ferreira CUNHA, **Gramática da Língua Portuguesa** (Rio de Janeiro: FAE, 1985) p.15.

[22] Ibidem, p.18.

populations of the Peninsula."[23]

In the second half of the 8th century A.D., Muslims from the north of Africa started invading the whole of the southern half of the Peninsula. Such a historic event destroyed the Roman-Visigoth Empire which had Christianity as its official religion and the Hispanic Romance as language.

The Arab invasion in the Peninsula pushed towards the Galicia, Asturias mountains and Cantábria (in the north of Spain), a small resistant group of Christian people who were responsible for the movement towards the reconquering of the southern half of the Peninsula. That movement lasted for eight centuries, giving rise to the Christian Kingdoms of Aragon, Navarra, Castilla and Leon (the southern part of which was later named Portucalense County). Here was the beginning of the history of Spain and Portugal, the two countries of the present Iberian Peninsula.

The languages of all those people who were in the Peninsula at some time, made a contribution to the main languages spoken in Spain and Portugal. However, although there are many ethnic, historical and cultural similarities between Spain and Portugal their languages are different, despite the fact that both are Romance languages. In Spain the official language[24] is Spanish and in Portugal it is Portuguese. But not only these two languages are spoken in the Peninsula nowadays. In addition to these two there are Basque[25], Catalan and Galician - languages spoken in Spain; and the Guadramilês, Rionorês, Mirandês and Barraquenho dialects which are spoken on the eastern border of Portugal with Spain.

Spanish denotations for *diseño*

At the end of the 5th century A.D. the languages spoken in the Iberian Peninsula were already closer to the Romance idioms than to the Latin vulgar. This marked the beginning of the Romance period so called because it corresponds to the transition phase from a vulgar spoken language into one linguistically structured and with written texts.

The first text written in Spanish is dated around the 10th century.

[23] Ibidem, p.19.

[24] Nowadays according to CRYSTAL there are in **Spain three official languages**: Spanish or Castilian, Basque and Catalan. D.Crystal, op.cit, p.357. Note: I would also include the Galician.

[25] **Basque** or Euskera is one of the oldest non- Indo-European languages in Europe, spoken in the Basque province in the north-east of Spain.

The Spanish Academy was founded eight centuries later by Philip V, the Spanish King, and within 200 years corresponding bodies were set up in most Central and South American countries.

The Spanish language also resorted to the Italian *disegnare* to form the transitive verb *diseñar* which can be used, in an artistic and technical sense as: to draw, design, plan, arrange etc.; that is to say, *diseñar* is synonymous with the English to design.

The Italian form *disegno* was the source of the nouns: (i) *diseño*, also a reduced form from *diseñar*, which has as its early forms *desiño* or *designio* - which can also be used as design in English; and (ii) *diseñador* a noun which can be translated properly into English as designer (in technological sense) and draughtsman (in artistic sense).

The Spanish language resorted to the French *deboissier*, which means one who makes engravings; sculptor; work artistically, to create: (i) the verb *dibujar* which artistically means to draw, sketch; technically to design and; in a figurative sense, to sketch in words, describe, depict; (ii) the noun *dibujo* which in its general artistic use means drawing, sketching; art of drawing and; (iii) the form *debujante* or *debujador* which can be used to refer to one who is a sketcher, cartoonist; draughtsman; designer as well (please see Appendixes #15 and #16).[26]

Galician denotations for *deseño*

The use of a different language is often a sign of a distinct religious or political group - as in the case of the Iberian languages Basque, Catalan and Galician.

From 1937 until the mid-1950s the attitudes under Franco's dictatoriship towards these languages were remarkable. In order to ban them from the north, north-east and north-west regions of Spain. The teaching of Basque, Catalan and Galician were forbidden, as were their uses in the media, church ceremonies, and all public places. Books in the languages were publicly burnt. Basque, Catalan and Galician names were no longer allowed in baptism and all documents were translated into Spanish.[27]

By the early 1960s, official policy had changed, and Basque, Catalan, and Galician slowly become, once again, political symbols of the people from the northern provinces of Spain. "In 1980 Basque language was recognized as an official language along with Spanish and

[26] Sources: **Diccionario de la Lengua Española** (Madrid: Real Academia Española,1970); and **Collins Spanish Dictionary** (London/Glasgow: Collins,) pp.201-5.

[27] D. CRYSTAL op. cit., p.37.

included in teaching programmes at all levels of education."[28] A similar process happened with the Catalan and Galician languages, the latter closely related to Portuguese.

Only in 1988 was the first Galician-Castilian/Castilian-Galician dictionary released, and from it it is possible to notice the morphological and phonetical similarities between the Galician form *deseño* with the Spanish *diseño* and the Portuguese *desenho* (please see Appendix #17).[29]

Portuguese denotations for *desenho*

The Portuguese verb *desenhar* came from the Italian *disegnare.* In the XVI century the form *desenhão* appeared in political sense, clearly showing still influences from the Latin *designare*: "...& a tudo o mays que quizerdes, todoa juntamente *desenhão* seu final intento ao ter dinheiro". In the XVII the form *desenhar* appeared meaning to design, project, planning and to draw in the book's title of Luis Serrão Pimentel[30]: *Methodo Lusitano de Desenhar as Fortificaçõens das Praças Regulares, & Irregulares Fortes de Campanha.*[31] (Lusitanian Method to Design Regular Square Forts, & Irregular Plain Forts). However, according to Prof.Margarida Calado, from the Department of Art History at the *Escola Superior de Belas-Artes de Lisboa* - Portugal, the Pimentels' book it is not the first Portuguese book concerning questions of design: In the 16th-cent., Francisco de Olanda in his book *Da Pintura Antiga*; in the 17th-cent., Padre Inácio da Piedade Vasconcelos with his book *Antiguidade da Arte da Pintura*; and in 18th-cent., Joaquim Machado de Castro with his works *Artefactos Symmetriacos e Geometricos*, and the *Dicionário de*

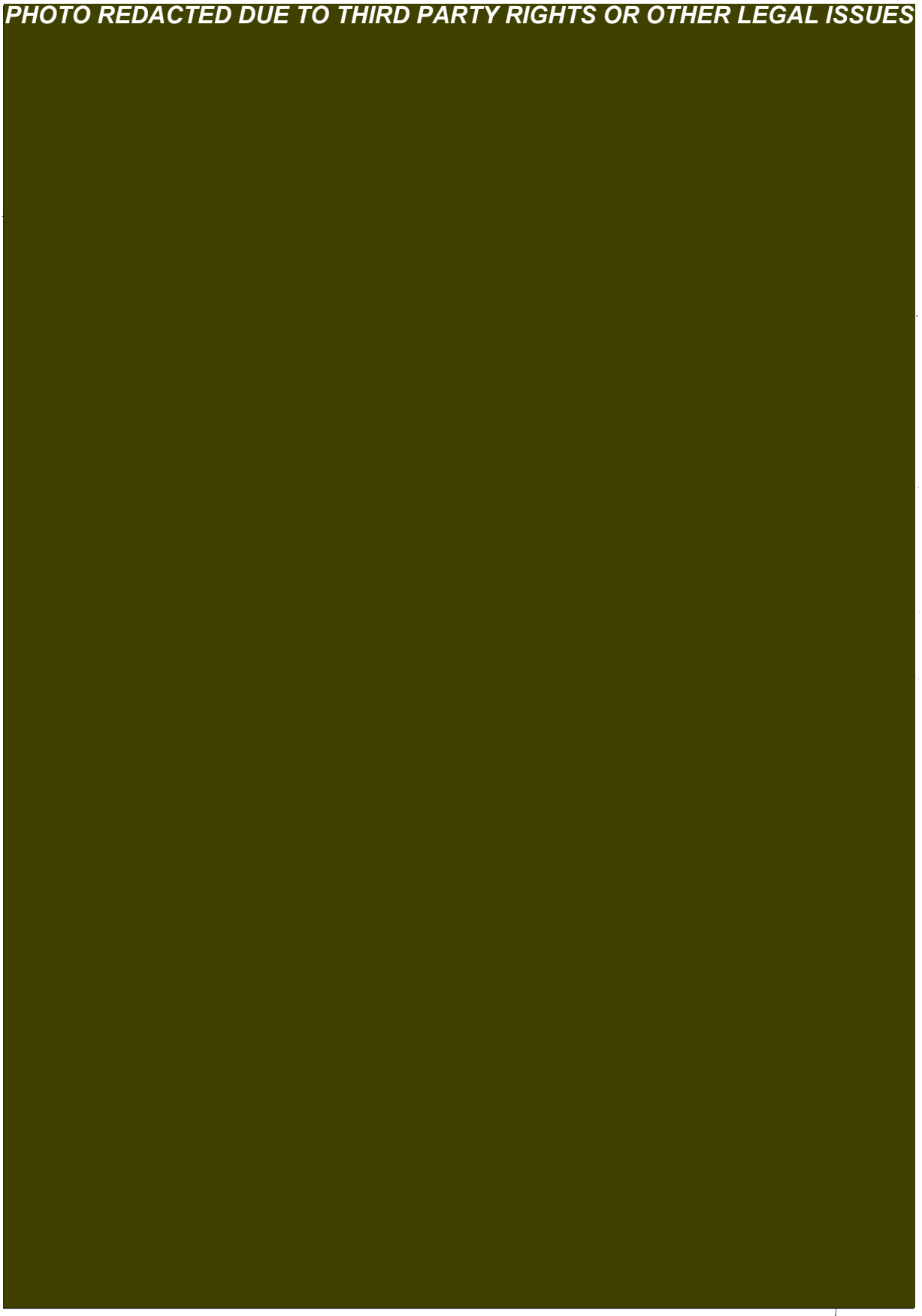
[28] Ibidem, p.34 .

[29] Source: Xosé G. FEIXO (Ed.), **Diccionario Galego-Castelán / Castelán-Galego** (Pontevedra: Ir Indo Ediciones, 1988) pp.207/234 and 166/168.

[30] **Luis Serrão PIMENTEL** (1613-1678), was a man of merit, honouring the Portuguese engineering and military architecture. He was born in Lisbon, and after had a hard-working life of 66 years, disastrously he died in a back-horse fall. Master in mathematics and in military engineering at the Ribeira das Naus, where there he taught not only military science but also the cosmography.

Note: Translated from Souza VITERBO, **Diccionario historico e documental dos architectos, engenheiros e constructores portuguezes ou a serviço de Portugal** (Lisboa: Imprensa Nacional, 1094) Vol.II, pp.269-274.

[31] Luís Serrão PIMENTEL, **Methodo Lusitanico de desenhar as fortificações das praças regulares, & irregulares, fortes de campanha** (Lisboa: Antonio Craesbeeck de Mello, 1680). Note: According to Prof. Margarida Calado, Pimentel's manuscript works can be found at the *Biblioteca da Ajuda, Biblioteca Nacional de Lisboa,* and in the *Biblioteca da Academia Nacional de Belas-Artes,* all in Lisbon, Portugal.



Frontispiece of Luis Serrão Pimentel's Book *Methodo Lusitanico de Desenhar as Fortificações das Praças Regulares & Irregulares.* Reproduced by kind permission of the *Biblioteca Nacional de Lisboa*, Portugal.

Escultura, all treated questions of design. Prof.Calado says that since the 16th-cent. the Portuguese expression *Artes do Desenho* meant architecture, sculpture and painting.

In 1945 *desenhar*, as a transitive verb, could be used with the following meanings: to represent through drawings; to draw; to trace; to design, score, mark; any visible way of representing any thing; to delineate; to imagine, think up; to figure, configure, appear; to give relief; to describe by speech; (as intransitive verb) to make drawings,to sketch, draft. As a reflexive verb, *desenhar-se*, means: appear in person, to come out; to stand out against and to grow away from; to sketch; to begin being detectable. From *desenhar* also are derived: the noun *desenhação* (out of use), the act or effect of to draw, design; the adjective *desenhado* which means something that was designed, represented by means of drawings; drawn, sketched; and the adjective and noun *desenhador* which means one who designs: muito aprecio a obra daquele maravilhoso *desenhador* que se chamou Leonardo de Vinci (I enjoy very much the work of that wonderful designer who was called Leonardo da Vinci).

In 1986, *desenhar* could be used in the following senses: to trace, to draw; to give relief to; to delineate, outline; to describe, present, show, exhibit especially by speech or writing; to make perceptible; noticeable; to represent, accuse; to conceive, design, project; imagine, think up; to trace drawings; to practise the activity of designing, drawing; to work as such; to turn up, to appear with the outlines well deffined; to emphasize, to stand up, to stand out; to appear, to represent or reproduce in mind, imagination; to figure.

The noun *desenho* come from the Italian *disegno*, and it is also a regressive form of *desenhar*. In the XVI century, *desenho* had the following political meanings: scheme, plot, design:...foylhe forçado deixar sua empresa, perder o *desenho* de sua cobiça, por acodir à conservação do adquirido...(was forced to leave his business, lose the design of his greed, to go to help the conservation of acquired). In that same written work the variable *dessenho* is introduced with the same political sense of plan, plot and scheme. In 1607 the form *disenho* still remains with the political meaning: E com este *disenho* vendo que nos não conhecia, dissimulando o seu conhecimento, lhe disse (And with this design realising that it was not known, dissembling its knowledge, I told to him). According to Machado the form *desenho* in an artistic sense can only be documented in the third quarter of the XVIII century: Dá-lhe o *desenho* de huma nova escada,/ E dize-lhe, que a fação. (Give to him the design of new stairs, / And tell to him, to produce it).

In 1945 *desenho* could be used in the following sense: a

representation of shapes on a surface bt means of strokes, and shadows; the art which teaches the processes of that representation; the outilines of figures; the general composition of a picture; decorative patterns in fabrics; general plan for a building; arrangement of the several parts of a literary and musical work. From *desenho* were derived the following expressions: (i) *desenho de imitação*, the drawing which represents figures, landscapes etc. (ii) *desenho linear*, the technical drawing especially made to represent adournments, objects, industrial machinery; (iii) *desenho vigoroso*, a drawing which strokes are drawn with a stead hand. Curiously in the Silva's dictionary it is pointed out that *desenho*'s meanings of project and planning, were, at that time, out of use; and that its political meaning of intention, plan, purpose, and fate were archaic.

In 1986 *desenho* can be used in the following senses: a representation of shapes over a surface by means of lines, dots, and shadows with the playing, artistic, scientific, and technical aims; the art and technique of drawing with pen, pencil, nib, paintbrush, etc. a real or imaginary theme, expressing the shape and usually given up the color; any work of art produced according to the conditions described above; the discipline related to the art and technique of drawing; first drafts and sketches of an artistic drawing or painting; design, sketch, plan, project: O *desenho* da Igreja de São Francisco de Ouro Preto é obra de Aleijadinho (The design of the São Francisco's Church in Ouro Preto is work of Aleijadinho); shape, form, configuration; (figurative usage) an idea's design; an fiction character's design; intention, aim, purpose. Other expressions of commun use apeared: *desenho à mão livre* , freehand drawing; *desenho animado* , animated cartoon; *desenho arquitetônico* , technical drawing representing a buildings and its details for construction); *desenho industrial*, a specific activity of an artistic and technical character which is responsible for the design of three-dimensional objects (*desenho-de-produto*), and two-dimensional ones *comunicação visual* . As the dictionary states 'both are based on functional and aesthetic criteria relevant to industry and mass production'. *Desenho industrial* is also the product of such activity and can be understood in general as a synonym to the English form design. *Desenho-de-produto,* can be used to refer to one of the parts of *desenho industrial* which is responsible for the 3D products and systems of products such as work-posts, furniture, domestic goods, machinery, tools, exhibitions. It can also be used, in a general sense, as a synonym of the English word design. Together with *desenho industrial* another tow expressions were generated: *desenhista-de-produto* and *desenhista-industrial. Desenhista* comes from the form *desenho*. It is the modern

form for the word *desenhador*, and it means one who draws or designs; person who practices the arts of design; person who designs or knows to draw and design. *Desenhista-de-produto* and *desenhista-industrial*, refer to a person who practises industrial design, and acquired his professional background at the third level of education.

Curiously, the English words *design* and *designer* have already been incorporated into the Brazilian Portuguese dictionaries as words of daily speech. And these are their meanings:

design m.n.Conception of a project or model; planning; the product of such planning; restrictive to: industrial design; product design; visual programming or communication.

designer n. Person who plans or conceives a project or model; restrictive to: industrial designer; product designer; visual communicator (please see Appendixes #18 to #23).[32]

As in the case of Spanish, Catalan, Galician and English languages, Portuguese also has its forms to express precisely the artistic meanings of to draw, drawing, and draughtsman. They are: *debuxar*, *debuxo*, and *debuxante* or *debuxador*. In order to understand the etymology of these words it is necessary to have in mind the following points:

(i) there is a small tree originally from Europe and Asia which belongs to the family of *Buxus sempervirens*, and which its wood is useful for woodwork, specially to make musical and drawing instruments. The Greeks used to call it *pyxos* and the Roman,*buxu* or *buxus*;

(ii) in French, the word wood has the form *bois*. Therefore, *boisé* means wooded, and *de bois* means wooden. The term *deboissier* means one who makes sculptures, specially in wood, or works artistically;

---

[32] Sources:

READER'S DIGEST (Ed.), **Dicionário Enciclopédico da História de Portugal** (Lisboa: Publicações Alfa, 1990) Vol.II, p.108.

José Pedro MACHADO, **Dicionário Etimológico da Língua Portuguesa** (Lisboa: Editorial Confluência/Livros Horizontes, Primeira Edição, 1952) Vol.II, pp.794-5.

Antonio de Morais SILVA, **Grande Dicionário da Língua Portuguesa** (Lisboa: Editorial Confluência, Primeira Edição 1789. Décima edição, 1945) Vol.III, pp.1016-7.

Aurélio Buarque de Holanda FERREIRA(Ed.) **Novo Dicionário da Língua Portuguesa** (Rio de Janeiro: Editora Nova Fronteira, Segunda edição revista e aumentada de 1986).

Francisco FERNANDES, **Dicionário de Sinônimos e Antônimos da Língua Portuguesa** (Porto Alegre: Editora Globo, 1974).

James L. TAYLOR, **A Portuguese English Dictionary** (George G.Harrop & Co., 1959).

Antônio HOUAISS, **Webster's Dicionário Inglês - Português** (Rio de Janeiro: Record, 1982).

Michaelis Dicionário Prático Inglês- Português, Português-Inglês (São Paulo: Melhoramentos, 1987).

(iii) the term *deboissier* was the probable origin of the Catalan term *dibuix* and certainly, the origin of the Spanish *dibujo*.

(iv) as the Galician language has not in its alphabet the letter "j" the equivalent letter for the representation for the Spanish phoneme "j" [x], is the letter "x" which phonological symbol is [ʃ]. So the Spanish word *dibujo* is, *debuxo* in Galician. As we can see, the Galician *debuxo* has the same morphology of the Portuguese *debuxo*. Thus, it is probable that the word *debuxo* has its origin in the Latin *buxus* despite the fact that some lexicographers do not agree with that.

The apparent problem with the Portuguese word *debuxo* is that it has the same pronunciation as the expression *de buxo* [33] which means pregnant and, in a bad sense, a woman who is pregnant but is not married.

The first Portuguese texts showing the form *debuxar* are from the XV century. In 1945 *debuxar*, as a transitive verb, meant to design, to delineate, to sketch, to draft, to draw, to reproduce. In figurative sense it could be used to mean to plan, to figure, to draw on a *buxus* wood plank; to imagine, to daydream; to paint, to represent, to describe, to picture with words. As a reflexive verb, *debuxar-se*, it means to design, to drawn, to paint, to sketch. In 1986 *debuxar* meant to draw; to outline; to sketch; to plan; to imagine; to foresee; to represent, to paint, to design.

From *debuxar* come from the adjectives *debuxado* which means sketched, designed, drawn; and *debuxante* or *debuxador*, which, is also a noun, and means one who draws; designer, draughtsman.

The noun *debuxo* is a regressive form of *debuxar* which in the XVI century meant design: como as suas casas são terreas com seus terrados por cima, posto que em cima tinhão outras casas, o *debuxo* he bom. In 1945 *debuxo* had the following meanings: design, draft, drawing, sketch, representation, picture, outline; plan, idea; woody plank; rough copy; to be in troubles. In 1986 it meant the design of an object in its general lines; draft, sketch; appearence; feature; board engraved with patterns to paint fabrics.

Another word which causes many problems to be understood by Brazilian designers is the Portuguese noun *desígnio*. It is derived from the Latin *designiu*, and it best usage is when one wants to express political purpose, aim, plan, project, intention, enterprise; or when one wants to express something related to fate and destiny: Os *desígnios* de

[33] **Bucho** n. 1. stomach of mammals and fishes. 2. pop. the stomach of man. 3. Braz. pop. tummy. 4. Braz. Slang, a very ugly or old woman. 5. Braz. AM, pop. whore, prostitute. RS. pop. harlot, strumpet. [cf. buxo] . 6. **De bucho**, pregnant . PE, pop. term used for the pregnancy of animals, and pejorative term for an unmarried pregnant woman.

Deus (God's designs).

Throughout the first two sections of this chapter I have concentrated on the significance of the particular meanings given to the words *design, dessin, disegno, designo, diseño, deseño* and *desenho*, which enable us to understand their literal and specific meanings as distinguished from their suggestive meanings and associations. In the next section I will consider the implications, associations and emotional overtones of some of those words and all that is implied by the use of them in educational terms. I have grouped together some comments made by Art and Design educators, from their own practical experience and association of ideas, about the words *disegno*, *dessin* and *design*; highlighting some of aspects of art and design education in the cultural contexts in which those educators have lived.

Connotations of design as a human ability

With the fall of the Western Roman Empire in 476 A.D. modern historians had their attention driven towards two aspects of western civilisation: the emergence of the Middle Ages, and the artistic and technical influences of the Byzantine Empire (founded in 330 A.D. by the Emperor Constantine) on western culture.

From the 12th century to the beginning of the sixteenth century Byzantine Art not only influenced the so called *major arts* of painting, sculpture and architecture, but also the *minor arts* of metal work, textiles, carved ivories, enamels, jewellry etc. "In the 12th Century were found objects of art produced in Venice, Amalfi, Benevento and other Italian centres, with Byzantine influence".[34]

Byzantine Art was a religious and a theological art, in the sense that Byzantine artists were not allowed to express their own aspirations, interpretations of the world, no personal views of the fact of what they were working on. Their function was "to translate into the language of art, for the instruction and edification of the faithful, the thought of theologians and the decisions of the Councils."[35]

The art that developed under the rule of the Eastern Roman Empire was also characterised by the stylisation of images and in this sense it was fundamentally opposed to the spirit of the ancient Greek Art, whose themes were mainly concerned with man and his natural likeness. Byzantine Art is mainly regarded as a ritualistic art rather than naturalistic one. This characteristic was eventually challenged by the more naturalistic ideals of artists like Duccio di Buoninsegna (active 1278-1319) and Giotto di Bondoni (c.1267-1337).

Giotto was a Florentine painter and architect who is regarded as the founder of the central tradition of western painting because his work broke free from the stylisation of Byzantine art, and introduced new ideals of naturalism, creating a convincing sense of pictorial space. "Even in his own day Giotto's greatness was recognised by his contemporaries: Dante express Giotto's greatness through the mouth of a painter in his 'Purgatory' (XI, 94-96)...; the historian Giovanni Villani (d.1348), in his 'Chronicles' lists Giotto as one of the great men of the Florentine Republic...; Vasari said that Giotto revived the art of

[34] Lynn WHITE Jr. *Tecnologia e Invenções na Idade Média* in Ruy GAMA (Ed.) **História da Técnica e da Tecnologia** (São Paulo: EDUSP, 1985) p.91.

[35] Ian CHILVERS et alii (Eds) **The Oxford Dictionary of Art** (Oxford: Oxford University Press, 1988) p.22.

painting...; and Cennini wrote that "Giotto changed the profession of painting from Greek back into Latin, and brought it up to date; and he had more finished craftsmanship than anyone has had since".[36]

As Frederick Hartt puts it: "Giotto's miracle lay in being able to produce for the first time on flat surface three-dimensional forms, which the French could achieve only in sculpture... Giotto indeed had the cry; within a decade after his great works made their appearance, the style of Cimabue[37] had been relegated to the country churches, and Giotto, his many pupils, and still more numerous followers dominated the Florentine scene."[38] One of his closest pupils was the Italian painter Taddeo Gaddi (c.1300-1366).

Taddeo was son of the painter and mosaicist Gaddo Gaddi (c.1250-1327?) and Giotto's godson with whom he worked for twenty-four years. In 1347 Taddeo Gaddi headed a list of the best living painters compiled for the purpose of choosing a master to paint a new high altarpiece for Pistoia Cathedral. Although transmitting the tradition of Giotto in his panels, Gaddi's style was less heroic and more anecdotal; he strove for vividly picturesque effects and met the popular taste for pictures full of episode and incidental detail.

His son Agnolo Gaddi (active 1369-1396) continued Giotto tradition, but modified it still further in the direction of decorative elegance. Agnolo was Cennini's master for twelve years.

Cennini: *diségno e il colorire*, the foundations

Cennino CENNINI (c.1370-1440) was a Florentine painter, writer and art educator whose paintings did not survive, but who is remembered as being the author of the **Il Libro dell'Arte** (1437), one of the most important sources concerning artistic practice in the late

---

[36] Extracts adapted from: Frederick HARTT **Art - a history of Painting, Sculpture, Architecture** (London: Thames and Hudson, 1976) Vol.I p.406 and; Cennino CENNINI **The Craftsman's Handbook Il Libro dell' Arte**. Transl. Daniel V. Thompson Jr. (New York: Dover Publications, 1933) p.2

[37] **Cimabue** (properly Cenni di Peppi) (c.1240-1302). Florentine painter. His nickname means 'Ox-head'. He was a contemporary of Dante (1265-1321), who refers to him in the Divine Comedy (Purg. xi. 94-5) as an artist who was believed to hold the field of painting only to be eclipsed by Giotto's fame. Vasari made him into the discoverer and teacher of Giotto and regarded him as the first in the long line of great Italian painters. He was said to have worked in the 'Greek' (e.g. Byzantine) manner, but to have begun the movement towards greater realism which culminated in the Renaissance.

[38] F. HARTT, op. cit., p.409.

Middle Ages[39], a fact which is pointed out by David Thompson Jr, who in 1933 translated and edited an English version of Cennini's book (at a time when Cennini's *Il Libro dell' Arte* had already been edited four times in Italian and translated twice into English, twice into German and once into French).

Despite the fact that Cennini in his first chapter says "Here begins the craftsman's handbook, made and composed by Cennino of Colle, in reverence of God, and the Virgin Mary... and in general, of all the Saints of God... and for the use and good and profit of anyone who wants to enter this profession...", Prof. G. Baldwin Brown wrote in the Introductory Essay of the book **Vasari on Technique** that Cennini in fact "was not a devotee nor a man of religion, but a city tradesman and an employer of labour... Cennini's Book of Art, though certainly written in the life time of Alberti[40], belongs in spirit to the previous, i.e. fourteenth, century. It reflects the life of the mediaeval guilds, when artist and craftsman were still one, and the practice of the arts proceeded on traditional lines in urban workshops where master and apprentices worked side by side on any commissions that their fellow citizens chose to bring."[41]

The following three chapters of Cennini's book have regard to the basic characteristics that those who were interested in following artistic careers must have in mind. For example:

Chapter II - How some enter the profession through loftiness of spirit, and some, for profit: "it is not without the impulse of a lofty spirit that some are moved to enter this profession, attractive to them through material enthusiasm...There are those who pursuit it, because of poverty and domestic need, for profit and enthusiasm for the profession too...;

Chapter III - Fundamental provisions for anyone who enters this profession: "You, therefore, who with lofty spirit are fired with this ambition, and are about to enter this profession, begin by decking

[39] Other very important sources about art and crafts in the Middle Ages are:
- THEOPHILUS **De Diversis Artbus** (1110/1140?) - a compendium of the decorative arts as they were practised in the medieaval monastry, drawn up by a German Benedictine monk. C.R. Dodwell produced the standart edition and English translation in 1961;
- Leon Battista ALBERTI **Della Pittura** (1436), **De Statua** (1460), and **De Re Aedificatoria** (1485) the first printed book on architecture.
- Benvenuto CELLINI **Sopra L'Oreficeria e la Scultura**, translated into English with the title The Treatise of Benvenuto Celline on Goldsmithing and Sculpture (New York: Dover Publications).

[40] **Alberti**, Leon Battista (1404-72) Italian architect, sculptor, painter, and writer, the most important art theorist of the Renaissance. He was born in Genoa.

[41] Giorgio VASARI **Vasari on Technique**. Transl. Louisa S. Maclehose (New York: Dover Publications,1960) p.8.

yourselves with this attire: Enthusiasm, Reverence, Obedience, and Constancy. And begin to submit yourself to the direction of a master for instruction as early as you can...;

Chapter IV - How the schedule shows you into how many sections and branches of occupations are divided: "the basics of the profession, the very beginning of all those manual operations, is drawing and painting."[42]

Stuart Macdonald says that in Cennini's book "the emphasis was on a light and steady hand... [and basically] the remainder of the book consists of technical advice on colours; on painting walls, cloth and glass, on gilding, casting, and mosaic; and on techniques of painting faces, drapery, diadems, dead men, and virgins."[43] And, in fact, this is true because Cennini wrote: "...And let the helm and steersman of this power to see be the light of the sun, the light of your eye, and your own hand: for without these three things nothing can be done systematically... And with that system set yourself to practice drawing, drawing only a little each day, so that you may not come to lose your taste for it, or get tired of it."[44]

Harold Osborn reminds us that "in Italian, when a systematic terminology of art was being worked out, the word *disegno* had a wider and narrower connotation [depending on the context of use] as has 'design' today although the emphasis has shifted." And he goes on to say that for *disegno* the "primary sense was drawing as for example when the 15th century theorist Francesco Lancilotti in his *Trattato di pittura* (1509) distinguished *disegno*, *colorito*, *compositione*, and *inventione* as the four elements of painting. So too Cennini made *disegno* and *il colorire* the basis of painting..."[45]

In my own view Cennini's book is indeed very rich in basic information not only about the art and technique of drawing, modelling and painting, but also the culture of his time. It contains much advice about the relationship between master and pupils, and about the way of life at that time which is very significant to the understanding of the guilds environment. For example, Cennini states the following (clearly showing that his role as educator went beyond the fields of art): "your life should always be arranged just as if you were studying theology, or philosophy... eating and drinking moderately, at least twice a day,

---

[42] C. CENNINI, op. cit., pp.2-3.

[43] Stuart MACDONALD **The History and Philosophy of Art Education** (London: University of London Press, 1970) p.22.

[44] C. CENNINI, op. cit. ,p.5.

[45] Harold OSBORN (Ed.) **The Oxford Companion on Art** (Oxford: Oxford University Press, 1987) p.311.

electing digestible and wholesome dishes, and light wines."[46]

However, because of its wide scope Cennini's book is criticised by modern art authors e.g "it is mediaeval in its encyclopaedic scope and approach, modern in its insistence on the innovations of Giotto..."[47] And "all the instructions were intended to produce finished craftsmanship, but Cennini did give a little intellectual guidance to the apprentice."[48] Nevertheless Cennini himself seemed to be very meticulous, an expert in his field and, over all, a man with intellectual humility: "I, with what little knowledge I have acquired, will expound, section by section..."[49], making reference to the contents of the chapters of his book.

Education of art and craft at Cennini's time was classified by mediaeval educators among the "craft-trades such as tailoring and leather work, and rated beneath agriculture, hunting and medicine. This low rating was due to the belief that painting and carving were merely craft skills, acquired by apprenticeship to the master of shop, who, like baker or candle-stick maker, bought raw materials, and then sold for a profit articles produced by the 'mysteries' of his craft."[50]

Art and Craft apprenticeship in the Middle Ages usually commenced at thirteen or fourteen years of age, and if the youth gave satisfactory service for five to seven years, and reached a fair standard of craftsmanship, he obtained a certificate from his guild and could then work as a journeyman. Famous Italian artist-craftsmen like Benvenuto Celline, Taddeo and Agnolo Gaddi, Cennini and many others, acquired their artistic background under that kind of apprenticeship. However, that kind of human ability and knowledge was not yet in the same status as literacy, for instance. Actually, until the Renaissance few artist-craftsman with a technical background in painting, sculpture, architecture, or even engineering were recognised socially, in spite of their high creative capability.

Leonardo da Vinci (1452-1519) was one who reacted seriously against the lack of consideration with which humanists treated him: - "I am fully aware that the fact of my not being a man of letters may cause certain presumptuous persons to think that they may with reason blame, alleging that I am a man without learning. Foolish folk!... They will say that because I have no book learning, I cannot properly express what I desire to treat of - but they do know that my subjects require for their

[46] C. CENNINI, op. cit., p.16.

[47] H. OSBORN, op.cit., p.214.

[48] S. MACDONALD, op. cit., p.22.

[49] C. CENNINI, op. cit.,p.3.

[50] S. MACDONALD, op. cit.,p.19.

exposition experience rather than the words of others... And if they despise me who am an inventor, how much more should they be blamed who are not inventors but trumpeters and reciters of the works of others."[51] "Intellectuals of his time saw in Leonardo only a mere engineer, lacking in literary education, and of such 'illness' suffered Leonardo his whole life... he could not attend a discussion between scholars because it was carried on in Latin. Leonardo's name was never put together with the names of Ficino, Landino, Poliziono or Pico della Mirandola."[52] Leonardo become indignant about the disdain from the intellectuals of his time for the craftsmen, artists, and for simply those who apparently worked only with their hands.

Changes in those kind of attitudes would be noticed in the High Renaissance when a movement was started demanding artists/craftsmen who had developed their intellectual side. Leonardo da Vinci was among those responsible for that. He, with his art manifesto, would exalt painting to the category of 'liberal art'[53]:

> "If you say that sciences which are not mechanical are of the mind, I say that painting is of the mind, for, as music and geometry treats of the proportions of continuous quantities, while arithmetic treats of the discontinuous quantities, as well as the proportions of shadow and light, and the variation of distance in perspective."[54]

A new pattern of art and design education was emerging with the academies. Although neither Leonardo nor Michelangelo ran a formal academy for both artists had a select band of well-born and well-educated disciples. The change in attitude came quite suddenly in the High Renaissance as the demand arose for intellectual artists capable of conceiving imaginative historic, religious, and poetic compositions. Thus, Giorgio Vasari, the son of a potter,was able to declare: 'I have lived to see Art arise suddenly and liberate herself from knavery and bestiality'.[55]

---

[51] LEONARDO Da Vinci, **Treatise on Painting** (Codex Atlanticus 117V/ 119V) Transl. McMahon, A.Philip (Princeton University Press, 1956) Vol.I . Also in Irma A. RICHTER (Ed.) **Selections from the Notebooks of Leonardo da Vinci**. (Oxford: Oxfrod University Press, 1977) p.2.

[52] Jean GIMPEL, **A Revolução Industrial da Idade Média**. Trad. A´lvaro Cabral (Rio de Janeiro: Zahar, 1977) p.124.

[53] **Liberal Arts** is the term applied to those arts that were traditionally considered primarily as exercises of the mind rather than a practical skill and craftsmanship.

[54] LEONARDO, (Codex Urbinas Latinus, 1270) Vol. I p.8 , qouted by S. Macdonald op.cit., p.23.

[55] Adapted from S. MACDONALD, op. cit., pp.20-3.

Vasari: *disegno e inventione*, the parents of all arts

Giorgio VASARI (1511-1574) was born in Arezzo, Italy, and lived there until thirteen years of age. In his early years he was apprenticed to a glass painter in Arezzo and in 1529 he moved to Florence to study goldsmiths' work as well as painting. In the following year he moved to Rome and there established a close friendship with Francesco Salviati (1510-1563). In Rome he had the opportunity to study the works of Michelangelo (1475-1564), Raphael (1483-1520), and Peruzzi (1481-1536) among others. Around 1538, Vasari began to work as an architect and also prepared the first edition of his *Vite de' piu eccellenti Architetti, Pittori et Scultori Italiani* (1550).[56]

In 1554 Vasari settled in Florence and worked as painter architect and artistic impresario for Duke Cosimo I de' Medici. Among the projects developed to Cosimo I, were a cameo, tapestries, map cupboards, a table intended for Cosimo's bedroom, vases etc. Until 1572, two years before his death in Florence, he was an active artist.

Simon Jervis says that Vasari "by translating Michelangelo's stress on the paramount importance of drawing into an academic doctrine, provided an important basis for the teaching of design. His own example as an impresario of design is the Florentine court which was also to have a far-reaching influence".[57]

As Ian Chilvers states, "Vasari wrote with a definite philosophy of art and art history. He believed that art is in the first instance imitation of nature and that progress in painting consists of the perfecting of the means of representation."[58] And as Harold Osborn said, "Vasari set design over against invention as the father and the mother of all arts. In its wider meaning *disegno* came to imply the creative idea in the mind of the artist (as this was often thought to be bodied forth in the preliminary drawing)."[59]

Considering that modern studies on creativity suggest differences between the various levels at which an individual may be creative[60], one can assume that Vasari was concerned with a kind of creativity which is marked by the presence of ingenuity in those who seek new ways of

---

[56] Simon JERVIS, **Dictionary of Design and Designers** (London: Penguin Books, 1984) p.494.

[57] Ibidem.

[58] I. CHILVERS, op.cit., p.512.

[59] H.OSBORN, op.cit., p.311.

[60] See for example I.A.TAYLOR, *The Nature of the Creative Process*, in P.SMITH (Ed.) **Creativity: an examination of the creative process** (New York: Hasting House, 1959) pp.51-82.

seeing old things, that is to say the inventive creativity.

The first Italian Art Academy was set up in 1563, when the Duke Cosimo de' Medici founded the *Accademia del Disegno* in Florence. Vasari, its prime mover, aimed to emancipate artists from the control of the guilds and to confirm the rise in social standing they had achieved during the previous hundred years. There were lecturers in geometry, anatomy and perspective but there was no scheme of compulsory training to replace regular workshop practice and no regular classes. "The Academy quickly won great international authority, but in Florence itself it soon degenerated into a sort of glorified artists' guild, and Vasari himself was dissatisfied with his foundation."[61]

As Vasari pointed out, there are three arts of design: architecture, sculpture and painting. And though "he did not put his own hand to nearly all the kinds of work that he describes [in his treatise on technique], yet was all his life a professional, in intimate touch with craftsmen in every branch of artistic production."[62] Vasari was also one of the first important collectors of drawings using them partly as research material for his biographies for the insight they gave into the creative process.

Vasari often used the word *maniera*, meaning style or stylishness in his writings, as a term of approbation, signifying qualities of grace, poise, facility and sophistication. From that word was developed the term 'mannerism' which today is most commonly used to cover Italian Art in the period between the High Renaissance and the Baroque, that is from about 1520 to about 1600. Nineteen years after Vasari's death, the *Accademia di San Lucca* was founded in Rome. It had as its first president Federico Zuccaro, a mannerist artist who was one of those responsible for adding other connotations to the word *disegno*.

Zuccaro: *disegno interno e disegno esterno*

Taddeo Zuccaro(1529-1566) was a mannerist painter who worked mainly in Rome and although he was only 37 when he died, he had made a great name for himself as a fresco decorator, working notably for the Farnesi family in their palace at Caprarola.

Federico ZUCCARO (1540-1609) took over his brother's flourishing studio and continued his brother's work. Although his talent was no more exceptional than Taddeo's, he became even more successful

[61] Adapted from I. CHILVERS et alii, op.cit.,p.3.; and S. MACDONALD, op.cit. p.24.

[62] G.Baldwin BROWN, *Introductory Essay,* in Giorgio VASARI, op. cit. p.5.

than his brother, acquiring European reputation which at least for a time meant he was probably one of the most famous living painters.

In 1593, he was appointed the first president of the newly founded the *Accademia di San Lucca* to which he later gave his house as headquarter. Zuccaro crowded the academy with colossal figures, organised a studio, daily afternoon debates on theory and general meetings once a fortnight. His academy was better organised and a more intellectual affair than Vasari's. The Academy of Rome became the most influential centre of art education in Europe until the nineteenth century, when artists began to prefer to study in Paris.

Federico Zuccaro was a Platonist, and so he believed in the philosophical theory that the meanings of the general words are real entities (forms); and describe particular objects by virtue of some relationship of these to the form. He also accepted that a correct art theory would produce good works of art and himself expressed his ideas in the book *L'Idea de' Scultori Pittori i Architetti* (1607). As Harold Osborn states, Zuccaro "distinguished what he called *disegno interno* or idea from *disegno esterno*, the execution of the idea in paint, stone, wood or other material."[63]

Considering that Zuccaro was talking about imagination, one must have in mind that for an individual to have his/her imagination highly cultivated it would be necessary to find a favourable environment which enables s/he to develop his/her abstract and conceptualising imaginary skill. And it seems that the issue regarding innovative creativity is so important for artists and designers that other Zuccaro's contemporaries shared his thought.

Giovanni Paolo Lomazzo (1538-1600) was a Milanese painter and writer who at the age of 33 went blind and took to writing on the theory of art publishing two treatises:*Trattato dell'Arte de la Pittura, Scoltura et Architettura* (1584) and *Idea del Tempio della Pittura* (1590). The*Trattato* was the largest and most comprehensive treatise on art published in the sixteenth century, and has been described as the 'Bible of Mannerism'. It is divided into seven books whose themes are proportion, motion, colour, light, perspective, practice, and history. Throughout the book runs the assumption that art can be taught by detailed precepts.

Abate Filippo Baldinucci (1624-1696) was a Florentine artist, historian, antiquarian, and philologian. His *Notizie de' Professori del Disegno* (1681), documents the lives of artists from Cimabue to his own time. Baldinucci was an innovator and an art historian and made use of every kind of document to compose his texts. Baldinucci wrote the first

[63] H . OSBORN, op.cit., p.311.

dictionary of artistic terms. He defined *disegno* as "a visible demonstration by means of lines of those things which man has first conceived in his mind and pictured in the imagination, and which the practised hand can make appear... It signifies also a configuration and composition of lines and shades which designates what remains to be coloured or otherwise executed and that represents a work already done."[64]

Osborn, in relation to this quotation, adds that "a certain mystique has been attached to the word as a result of analogies often drawn between the creative activity of the artist and the creation of the world by the Deity or by a Platonic Demiurge in accordance with ideas or prototypes. In this context of ideas it was the power to 'design' which was held to distinguish the artist from the craftsman."[65]

Another Platonist who shared the idea of *disegno interno* and *disegno esterno* was Giovanni Pietro Bellori (1615-1696), an Italian biographer, art theorist, antiquarian, and collector wrote one of the most important works for the history of the baroque period:*Vite de' Pittore, Scultori et Architetti Moderni* (1672). That work was dedicated to Colbert, the founder of the French academy, and who was helped by his friend Poussin in its organization. The preface to the work was a lecture given in the Academy of Rome, which became the seminal statement of the Classical theory of an art which mirrors the ideal essence of reality.

De Piles: *dessin, la circonscription des objets*

Nicolas Poussin (1593-1665) was a French painter who worked mainly in Rome and is regarded not only as the greatest French painter of the seventeenth century, but also as the mainspring of the Classical tradition in French painting. His first Roman work show him to have been still dominated by the Mannerism of the mid sixteenth century.

In 1629-30 Poussin was seriously ill. The illness coincided with a change of direction in his work. He was preoccupied with the depiction of emotion by the gestures, pose, and facial expression of his figures, and pondered a literary and psychological conception of painting. His reputation was very high by the end of the 1630's and in the 1640's he reluctantly succumbed to strong pressure and returned to Paris. He was commissioned to superintend the decoration of the *Grande Galerie* of

[64] Ibidem, p.311.

[65] Ibidem.

the Louvre. His visit was ruined by jealousy and intrigue, and in September 1642 he left again for Rome, remaining there for the rest of his life.

The most important outcome of the visit for Poussin was that he had come into contact with the intellectual bourgeoisie of Paris, the public of Pierre Corneille and René Descartes, who patronised him for the remainder of his life.

According to Poussin's 'theory of modes', the subject of the picture and the emotional situations depicted dictate the appropriate treatment, which can be worked out rationally and consistently according to principles expressible in language. He formulated what became the central doctrines of Classicism taught in the academies: "Painting should appeal to the mind not the eye."[66] Poussin's example was the basis of Le Brun's academic doctrine and has been of enormous influence on the development of French art.

The religious wars of the sixteenth century left France in a prostate economic and political condition, from which it was rescued by a succession of ambitious monarchs, each assisted by an able minister - Henry IV by Sully, Louis XIII by Richelieu, and Louis XIV by Colbert. During the seventy-two-year reign of Louis XIV in the second half of the seventeenth century and early eighteenth, Paris began to replace Rome as the principal artistic centre of Europe, a position it maintained almost unchallenged until World War II.[67]

Jean-Baptist Colbert (1619-1683) was a French statesman who, after the death of Cardinal Mazarin in 1661, became Louis XIV's chief instrument in organising the machine of state control through which, among other things, he exercised a dictatorship over the arts. It was the object of Colbert and the King to present to the world a visible image of the magnificence and power of the French crown and in carrying out this purpose the grandiose reconstruction of Versailles and its splendidly flamboyant decoration became a symbol of central importance.

Colbert's right-hand man in exercising control was Charles Le Brun (1619-1690), who in 1663 was appointed director of the Gobelins tapestry factory and president of the Royal Academy of Painting and Sculpture. Le Brun was a painter and art theorist and the dominant artist of Louis XIV reign (1643-1715). In 1642 he went to Rome and worked under Poussin, becoming a convert to the latter's theories of art. "Colbert was determined, through Le Brun, to create a well-ordered style of French art, which would compare with the classical style of French literature that the *Académie Française* was formulating

[66] Adapted from I. CHILVERS, op.cit., p.397.

[67] Extracts compiled from F. HARTT, op. cit.,Vol.II p.231.

by approved forms of grammar, poetry, and rhetoric."[68]

And at that time the western dualism though heaven/hell; good/bad; to be or not to be...was also evident in the European Academies circle. Therefore, it was not only the Platonic philosophy that supported the ideas of those who were involved in the art context; the theory of abstraction; the theory of syllogism; the concepts of act and potency, form and material, and substance and accident were Aristotelian doctrines which exerted, and still exert, enormous influence in the western thoughts.

Poussin's name was used in the Académie to give support to those who believed in the superior importance of design in painting (Poussinistes) in opposition to that of Rubens, who stood for the importance of colouring (Rubensistes). And although the Rubensistes won the day, Poussin continued to be the inspiration of classically minded artist right into the nineteenth century. In that famous controversy De Piles took the side of those who held that colour and *chiaroscuro* are the prime importance in painting.

Roger DE PILES (1635-1709), was a French art historian, and an amateur painter who was employed by Louis XIV on various diplomatic missions and thus was able to study the arts at first hand in many European countries. He was an admirer of Peter Paul Rubens (1577-1640). As an Aristotelian he thought that "the understanding of the scheme of things comes empirically by noticing what particular individuals have in common and therefore insisted that *dessin* must be based on the careful observation of nature - what de Piles in his *Cours de Peinture par Principes* (1708), called *la circonscription des objets.*"[69] Considering that the verb to circumscribe means to restrict within limits, to mark or set the bounds of something; to draw a geometric construction around another construction so that the two are in contact but do not intersect and so, each one serve of background to the other, one can make an analogy of what De Piles considers the 'circumscription of the objects' with the first principle of Gestalt school: the figure/ground principle maintains that every perceptive experience is a pattern discriminated against a background. And at the philosophical level, one can recognise in de Piles' statement an indication of the idea that any kind of design must be inserted in a specific cultural context. That is to say: any design is not only circumscribed by, but also it circumscribes values of a particular culture of the society.

Roger de Piles also recognised the value of genius, imagination, and enthusiasm in artists, and therefore, he was against the excessive

[68] S. MACDONALD, op. cit., p.25.

[69] H. OSBORN, op.cit., p.311.

domination of formalised rule as a basis of artistic works. This issue is, in my understanding about design education, paramount to be considered when educational aims in design schools are being established towards the development of students' creativity.

Dyce: *design*, a kind of practical science

One of the leading exponents of the ideal of practical education was J.A. Komensky (1592-1671), better known as Comenius. He believed that knowledge, mastered and shared, could change the world. Hence the aim of much of his work was to improve education. He also believed in the unity of all knowledge and wrote books of an encyclopaedic kind to illustrate this.

The books which Comenius wrote on subjects connected with education and the extension of useful knowledge attracted wide attention. They were welcomed by English Puritans, and were published in English translation from 1631 onwards. England and Sweden were the countries most admired by the Comenians: "...Swedish mines and industries were developing in an exemplary way under the management of Louis de Geer, a Calvinist banker who himself greatly admired Comenius and sought to put his educational ideas into practice. England, a country where the Protestant cause seemed secure, and where Protestant refugees from eastern Europe were settling, was also admired because it had been the home of Francis Bacon (1561-1626), the most eloquent and influential of all the advocates of a 'philanthropic' science and socially useful technology."[70]

Bacon believed that advances in knowledge would lead inevitably to an improvement in the practical arts by which the lot of man was eased. Bacon, Comenius and some other thinkers were responsible in giving an enlarged philosophic scope to the practical knowledge of the artisan.

Between 1660 and 1770 there was remarkable technical progress in Europe and much of that was due to the initiative of some European governments. Nevertheless the English King "was not an absolute monarch, and rarely indulged in such extravagant royal expenditures as those of the Austrians and French. Parliament set limits on the King's power, and supported a form of government in which policies like Colbert's, or like those of the Austrian Crown, were almost unthinkable. One disadvantage of this was that technical schools like

[70] Arnold PACEY, **The Maze of Ingenuity: Ideas and Idealism in the development of technology** (London: Allen Lane, 1974) p. 166.

those of France, Saxony and Austrian Empire were never established in Britain. In the 19th century, this neglect of technical education came to be sorely felt."[71]

In 1730, for example, "it had proved impossible to find an English engineer to build Westminster Bridge. The job was given to Charles Labelye (1705-62), a Swiss engineer who had been educated in France. J.T.Desaguliers, the author of the only worthwhile English book on practical mechanics, pointedly remarked that England lacked 'Ingénieurs' of a proper education for the science. He used the French word to denote a breed of man which did not then exist in England."[72]

Thirty years later, 1760 marks the beginning of the first industrial revolution[73] in Britain. And as Arnold Pacey explains, that period is called the First Industrial Revolution because a revolutionary process was happening in Britain where "businessmen were reorganising the process of production, introducing factories and imposing new ways of labour management."[74]

However, there was "no public establishment, except the common schools, for the rudimental knowledge necessary to all arts, naval, military, mechanics and others, and the education of engineers was left to chance."[75]

By 1851 that period was over. The Great Exhibition held in Hyde Park in London during that year showed what had been achieved for all the world to see. "There was no branch of manufacture in which the British lacked competence."[76] Several achievements were gained in chemistry, electricity, heat and light, and, especially in mathematics. New sciences were born: electromagnetism, thermodynamics etc., and all with enormous potential of useful application. Then, there started what is properly denominated of technology: "the systematic knowledge of practical subjects."[77] And the period following 1851 is denominated by Pacey as the Second Industrial Revolution."[78]

As Pacey points out, the second industrial revolution depended basically on technologies based on science. It was characterised by the coordination of several different institutions, laboratories and factories,

[71] Ibidem, p.202.

[72] Ibidem, p.206.

[73] See for example: Phyllis DEANE, **The First Industrial Revolution**.(Cambridge: Cambridege University Press, 1965, 1979 -2nd edition)

[74] Arnold PACEY, **El Laberinto del Ingenio: ideas e idealismo en le desarrolo de la tecnologia**. Trad. Homero A. Thevenet (Barcelona: Gustavo Gilli,1980) p.284.

[75] A. PACEY, The Maze of Ingenuity... op.cit. p.202.

[76] Ibidem, p.296.

[77] Ibidem, p.19.

[78] Ibidem, p.296.

and polytechnic schools, as well as depending much more on a community of professional people rather than on the individual enterprise initiative. Therefore, "during the 1860's and 1870's, the same English rich and strong industrial base [shown in the Great Exhibition], hid the British deficiency in questions of technical education and investigation... A century after the beginning of the First Industrial Revolution, England was one of the poorest countries in Europe."[79]

And that was clearly reflected in art and design education. In contrast, Germany, Pacey says, was the most important nation in the second industrial revolution, and showed clear signs of the development of social technocratic control, through a network of educational, scientific and productive institutions which coordinated their efforts before a common technological aim, and achieved a new social technocratic order.[80]

A national art education in Britain was authorised by the British Parliament in the last year of the reign of William IV, during the ministry of Lord Melbourne. And the first British academy of art appears to have been the Academy of Painting established in 1711. But colleges of art and technology in Britain had their origin in the local institutions and Mechanics' Institutes of the early nineteenth century.

During that period art institutions, and literary and philosophical societies amalgamated, took on a more professional character, and built large premises containing galleries, theatres and rooms for day and evening classes. And so were opened in 1817 the Liverpool Royal Institution, and in 1829 those of the Manchester Royal Institution.

The local art academies attached themselves to these institutions and exhibited there. Lectures and classes in literary and scientific subjects, and in drawing were provided for young professional men, and in 1935 the student body, for example at the Manchester Royal Institution, included schoolmasters, architects, artists and engravers. However, "young mechanics or 'children of the labouring poor' were not welcome. Mechanics' Institutes sprang up to fill the gap."[81]

Actually, the first institutions which conducted free classes in drawing, geography, and science for artisans was the Brotherly Society in Birmingham in 1797, though its example, as Macdonald states, was not generally followed.

The first educator to organise a course of lectures planned specially for industrial workers was Prof. George Birkbeck from the

[79] A. PACEY, El laberinto del Ingenio... op.cit. p.287.

[80] Ibidem, p.285.

[81] S. MACDONALD, op.cit., p.37

Andersonian Institute in Glasgow. His predecessor John Anderson, an associate of James Watt (1736-1819), had allowed the mechanics who assisted him to construct apparatus, and to attend his lectures. After Birkbeck had lectured to Glasgow Mechanics' with great success, he moved to London and was instrumental in founding the Mechanics' Institute there in 1823. In that same year the Glasgow Mechanics' Institute was founded, and in the following year Manchester and other industrial cities quickly followed suit.

A Mechanics' Institute usually rented rooms for a library of books, and prints, a lecture theatre, and a museum of machines, minerals, models, antiques, and stuffed animals. Rooms were often small and badly lit. "Lectures were organised at least two evenings per week on literary and scientific subjects, and fine arts, and elementary classes were formed on normal school subjects and architectural, mechanical, ornamental, figure, floral, and landscaping drawing. Some modelling was also attempted, and the Art syllabus sounded both impressive and encyclopaedic, but the lectures of fine art were historic and far above the artisans heads, while the art classes were a very low standard owing to the lack of teachers... However, Mechanics' Institutes multiplied and provided the sole chance the artisans had of learning to draw, until the establishment of the schools of design."[82]

In 1837 the Normal School of Design was established in Somerset House, Aldwych. The staff of the new school, officially appointed on 3 May 1837, were the first teachers in Britain to be salaried out of public funds. The first director of the school was John Buonarotti Papworth (1775-1847) , an architect and interior designer who had published books of design for *cottages orgnés*, conservatories and summer houses.

The Normal School of Design officially opened on 1st June with the daily Morning School from 10 a.m to 4 p.m., but as Macdonald says it made a very poor start. No enthusiasm came from the public, and the number of youths (aged from twelve upwards) never arose above seventeen for the rest of the year.

In the Morning School there were first of all the apprentices in architecture and in crafts and manufacturing, voluntarily released by employers, and usually in their early teens. Secondly there was a large proportion of boys who, in spite of the regulations, hoped to become artists and designers, some even aspiring to entry into the Royal Academy Schools. When the more popular Evening School was started later (introduced in August 1837), with a minimum age of fifteen years, the proportion of craft apprentices was greater, and the proportion of

[82] Ibidem, p.38.

youth intending to be artists and designers much smaller.[83]

According to Macdonald one of the reasons for poor enrolment in the early days of the School was that the pupils had not only to provide their own drawing boards and often the requisite materials, but also... a fee..., part of which contributed to the salaries of the staff.

The atmosphere in the School of Design was, as stated by Macdonald, 'pathetic'. And criticism similar to this, added to many internal educational management and administrative problems gave rise to considerable discontent in the School. And because of that situation , The Board of Trade, which was responsible for its establishment, sent Mr. Dyce of Edinburgh to study the schools of design in France and Germany.[84]

William DYCE (1806-1864) was a Scottish painter, designer, and art educationalist who made several visits to Italy and was profoundly impressed by the 14th- and 15th- century Italian painting, especially that of Raphael (properly Raffaello Sanzio 1483-1520). In Italy he also came into contact with the German Nazarenes[85] which proved influential to his way of painting and his thoughts. Dyce was widely talented: a musician, scientist, portraitist, decorator, and a painter whose "his bright colours and naturalistic detail formed a bridge between the Nazarenes and the Pre-Raphaelists."[86] Dyce's ideas on design were much respected, and although he had little influence on manufacturers, his training of teachers was very important to the history of Design Education in Britain.

"When Dyce arrived in France in September 1837, he found himself in a country with some eighty recognised schools of art...The school which had the highest reputation in Europe for producing designers was the Academie des Beaux Arts de Lyon... Despite the fact that the students were nearly all the sons of the factory workers selected by the mayor, they considered themselves as 'artists in the high sense of the word'. The distinction between High and Low Arts was not maintained as in Britain."[87] Other large French school which dealt with design was the *École Gratuit de Paris*, that also had a similar educational system as the Academy. That is: basic course in drawing and painting; life drawing, and the *mise en carte* a French method of drawing out a pattern or preparing a model for industrial production.

Nevertheless, Dyce found the schools in Germany more to his

[83] Ibidem, p.74.

[84] Ibidem, p.75

[85] **Nazarenes.** Name originally given to a group of painters of the early 19th century.

[86] I. CHILVERS, op.cit., p.158.

[87] S. MACDONALD, op.cit., p.79.

linking. In Prussia schools were not under an educational body as in France. "There were four of these schools (at Breslau, Königsberg, Danzig and Cologne), called the *gewerbeschulen*, and a central and principal school at Berlin, the Gewerbe Institut, to which the best pupils were forwarded. Instruction was free; it included mathematics and physics, and was not so much education in art as in the actual 'manufactures with which art is concerned'. The students could increase their technical knowledge by reference to the museum of models of the most remarkable monuments of antiquity and the middle ages."[88]

The Bavarians ran the system most favoured by Dyce. All the primary schools had classes for outline drawing of geometrical shapes and simple elements of ornaments. At this stage *embellishment* such as tone and colour were prohibited. Perspective also was taught. These primary classes were optional and when the pupils who had studied in them left, they could choose one of the thirty secondary *gewerbeschulen* which existed in Bavaria for training artisan designers.

In the *gewerbeschulen* the pupils learnt French, history, geography, natural philosophy, and chemistry, and continued to draw. Those pupils who were considered sufficiently intelligent were then admitted to one of the three Bavarian Polytechnics, where they could pursue engineering, architecture, water theory, forestry, mining, and languages. At this level the design taught had little to do with art; it consisted of scientific information concerned with design as applied to the technical subjects listed above and the local industry, and practical instruction or industrial methods of production in the school *werkstatt*. Dyce, himself a graduate scientist, was delighted with the Bavarian system... and returned to England determined to import the German model.[89]

Macdonald says that Dyce was preoccupied with methods, not with art. He argued that one could not expect the students' work to be examples of taste: 'they would be merely exercises done... The object is to teach the art of preparing designs for manufacture'. This was, in the words of Macdonald, Dyce's worst error. "The original purpose of the Normal School of Design was to improve the standard of taste in the country and raise a new class of designers. This was precisely what the French and German schools were doing: the French by encouraging practical contact with fine arts and the Germans by a wide course of liberal education... which the people use to procure the fulfilment of their own desire."[90]

[88] Ibidem, p.79.

[89] Adapted from S.Macdonald, op.cit.,p.80.

[90] S. MACDONALD, op.cit.,p.119.

It was Dyce's lack of appreciation of the need for a liberal education which hampered his scheme. And although Dyce's view of design training was pragmatic because it could be taught systematically considering the methods, theory, and practices governing the application of practical and mechanical sciences to industry or commerce, the teaching methods proposed by Dyce had as a result the 'most dull, tedious, and mechanical drawing produced in any period, and another was a proliferation of a strange flattened geometrical designs peculiar to British Schools of Art'. This issue, in my opinion, is another example how dangerous is to relate the principles of design education only with technology. However, Macdonald says that it would be unfair not to admit that Dyce's basic concept of design as technology ultimately had some very beneficial results: "Today [1970] at a time when Colleges of Art and Design are bent on bringing together art and industry, we might to be tempted to believe that Dyce was an enlightened pioneer of the Bauhaus concept of art education."[91]

Behrens: design - geometrical and functional

The first industrial revolution brought forth machines and materials which usurped the traditional functions of the artist and craftsman. Cast iron was more versatile than brick or wood. Steam-driven machines could stamp, cut and fashion almost any substance faster and more regularly than human hand. Mechanised production meant lower prices and higher profits.

The London Great Exhibition of 1851 demonstrated, to anyone who cared to think, how much the world had changed since the beginning of the 19th century. "In that exhibition not only traditional manufactured goods from almost every country [Brazil was not represented at that exhibition] in the world but also the new fangled steam-driven machines, engines, hammers, lathes, and looms which had given Britain industrial and economic advantages enjoyed by no other country."[92]

While most of the people were fascinated by the products displayed at the Great Exhibition, some people engaged in the fields of science and technology, or in art and craft work, were interested only enough to criticise it.

On the one hand, Charles Babbage (1792-1871) - as Pacey believes,

[91] Ibidem, p.118.

[92] Frank WHITFORD, **Bauhaus** (London: Thames & Hudson, 1984) p.13.

one of the most intelligent of the many commentators of the Great Exhibition - under the scientific and technological view argued in his book *The Exhibition of 1851* (1851) expressed a view of British prospects which was much less cheerful than might have been expected. "The British, Babbage thought, were neglecting the sciences on which their technical achievements were based. [As] varied and numerous as they are, may each, in some future day, become the basis of extensive Manufactures, and give life, employment and wealth to millions of human beings."[93]

On the other hand, those engaged in the fields of art, craft and applied arts had a less optimistic view about the Exhibition. As Whitford illustrates, "a small number of thoughtful people were horrified by what it contained. They believed that the machine announced (among other terrors) the imminent demise of both individuality and the craftsman...The most articulate opponents of the machine in nineteenth century Britain were John Ruskin (1819-1900) and William Morris (1834-1896). The latter thought that it was dishonest for machine-goods to pretend to be hand-made, while the former was opposed to the use of the machine altogether, damning the introduction of any device in the crafts which did more than aid 'the muscular action of the human hand'."[94] Nevertheless, the Great Exhibition staged in London's Hyde Park in 1851 had immediate repercussions, not only in the European Continent and America, but also in Brazil, as we will see in the next chapter.

Another person who was critical of the most of what he saw at the Great Exhibition was the German architect Gottfried Semper (1803-1879). Semper, like Babbage, realised that technological progress was irreversible. Instead of devising ways of keeping traditional crafts alive (as Ruskin and Morris desired) he proposed the education of a new kind of craftsman who would understand and exploit the machines' potential in an artistically sensitive fashion. "In England the phrase 'Arts and Crafts' had been coined to describe the results of the various attempts to revive craftsmanship and reform design. Semper invented a German equivalent: *Kunstgewerbe*."[95]

An Englishman who sympathised with Semper, had helped to organise the Great Exhibition, but was critical of the goods on show there was Henry Cole (1808-1882). "Like Semper, Cole considered that the only lasting solution to the problems proposed by industrialisation was education in which craft museums would play an important role as

[93] A.PACEY, The Maze of Ingenuity, op.cit.,p.293.

[94] F.WHITFORD, op.cit.,pp.15-6.

[95] Ibidem, p.16.

schools of arts and crafts... Cole exerted a considerable influence not only in Britain but also on the Continent, and especially in Germany and Austria."[96]

As Whitford says, the Industrial Revolution precipitated a crisis in architecture. It was not simply a question of whether architects might legitimately employ new building-materials and of the forms the use of such materials might demand. It was also one of the devising solutions to the problems created by the stupendous and distressing growth of urban population. How and where was the new urban proletariat to be housed?

The first solution, Whitford continues, to these problems was suggested in England where estates of dwellings for working families began to appear as early as the 1850s. During the last two decades of the nineteenth century Britain came to be admired on the Continent for the quality of its industrial products, its crafts, its art and craft schools, its garden cities and its modest and solid domestic architecture. In 1910, however, the Austrians and Germans were in the vanguard and had overtaken Britain in the originality of ideas and the quality of practical solutions to the problems of art education, craft, design and architecture.

The *Wiener Werkstätte*, crafts workshops established in Austria in 1903, which produced furniture, household goods, textiles, and even clothes for sale in its own shop, soon became identified with a style that was relatively simple and essentially geometric. At the same time radical Viennese architects like Adolf Loos (1870-1933) began to design buildings which most of their contemporaries regarded as alarmingly anonymous and devoid of ornament. This lack of ornamentation - a major characteristic of all twentieth century design - had ideological as well as aesthetic justification.

In 1896, the German Government had created a special post at its London embassy so that the architect Hermann Muthesius (1861-1927) could study and report on British town-planning and housing policies. Muthesius admired English domestic architecture for its sobriety and functionalism, qualities he also looked for in the crafts. He wanted objects that expressed the qualities of the materials in which they were made, were free from unnecessary ornament and could be afforded by the broad mass of the public. He believed that ornament and mechanised products were irreconcilable. 'What we expect from machine products is smooth form reduced to its essential function'.[97]

After his return from London, Muthesius was appointed

[96] Ibidem, p.17.

[97] Ibidem, pp 19-20.

superintendent of schools of arts and crafts by the Prussian Board Trade. And would start in Germany some of the most advanced thinking on art and design education around the turn of the century, thanks, not only to Semper and Muthesius, but also, as Penny Sparke says, to the German art historian, Alfred Lichtwark (1852-1914) "who was particularly influential within the context of elementary and secondary education... and progressive educational principles were also evident in a number of other centres in Germany where many new and influential teachers were busily being appointed [by Muthesius], among them the architects Peter Behrens (1868-1940) in Düsseldorf, Hans Poelzig (1869-1936) in Breslau and Bruno Paul (1874-1954)."[98]

As Macdonald pointed out, "the Germans were enthusiastic enough about the Arts and Crafts Movement to set up *kunstgewerbeschulen*, but, like the Americans, they were far too progressive and practical to indulge a mediaeval type of artist-craftsman, isolated from the mass of society; thus whereas British design education in the early decades of this century was dominated by Morris and Crane, two artist-craftsmen, the initiative in Germany and Belgium came from the architect/teachers Wagner, Loos, Hoffmann, Muthesius, van de Velde, Behrens and Gropius."[99]

Whitford goes on, "even more important than Muthesius' efforts in art education were his attempts to persuade German industrialists to encourage good design. In 1907 he succeeded in bringing together twelve artists and twelve industrialists to found the Werkbund... Its aim was the reconciliation of art, craft, industry, and trade, and a subsequent improvement in the quality of German products."[100] In 1907, Peter Behrens, one of the founder members of the Werkbund, was appointed as a chief designer at the *Allgemeine Elektricitäts Geselchafts*, AEG - the German general electricity company.

Peter BEHRENS (1869-1940) began his career studying painting, but due to his interest in the practical arts he turned to design and architecture. From 1903 to 1907 he was director of the Düsseldorf School of Applied Arts where "realising the implications of industrialisation and the potential of machine, he reorganised the schools' curriculum in an attempt to reconcile traditional craftsmanship and mechanised production. 'Whether and when it will be possible to transform the great technological achievements of our age into expression of a mature, elevated art is a question of the greater importance, of significance for the history of human culture'. The

[98] P.SPARKE, op. cit., pp.159-60.

[99] S. MACDONALD, op.cit., p.314.

[100] F.WHITFORD, op.cit.,p.20.

Düsseldorf school was one of the earliest German attempts to give art education a modern face. Significantly, Gropius' future partner, Adolf Meyer, was educated there."[101]

In 1906 he was asked to design publicity material for AEG. Behrens then left Düsseldorf for Berlin were he joined the electrical company in June 1907, and held the position until 1914, representing a new phase in company policy, stimulated by new production techniques and marketing concepts. There he designed, based on the 'functionalist tradition', not only buildings but also products, shop-fronts, and advertising.

"Behrens' role as artistic director therefore differed substantially from the limited and occasional commissions previously given to architects and artists. His was a permanent appointment with complete control over all visual aspects of AEG's installation, products and publications."[102] At that time, for a few months Charles Edouard Jeanneret (1887-1965), later to call himself Le Corbusier, worked as a junior in Behrens private architectural practice. So, too, did two future directors of the Bauhaus: Walter Gropius (1883-1969) and Ludwig Mies van der Rohe (1886-1969).

Behrens was a prolific pundit on design, deeply involved in the German *Werkbund.* This didactic importance has tended to overshadow his great all-round gift as a designer, although his industrial work for AEG has received more than its due from historians of the modern style and industrial design. His work for AEG anticipated the modern concept of corporate identity, and indeed, during the early years of the new century Behrens had established himself amongst the front rank of German designers. Behrens frequently expounded his own concept of the role he played in the company. "In a lecture given in association with an exhibition of his early work for AEG in 1909, he stated the objects on display were not so-called applied arts products, but objects of use, that serve less to decorate the human environment and above all have to service a useful purpose... The emphasis was on good proportions rather than ornament, but where the latter was necessary or desirable it should be impersonal, which was best expressed in geometric forms."[103]

Heskett says that "there was a wider purpose to his work, however, expressed in the argument that modern manufacture made it possible to place a sophisticated technology in the service of culture.Through the

[101] Ibidem, p.22.

[102] John HESKETT, **Design in Germany 1870-1918** (London: Trefoil Design Library, 1986) p.138.

[103] Ibidem, p.140.

mass production of objects of use, corresponding to an aesthetically refined order, it is possible to carry taste into the broadest sections of the population. Behrens said: - 'The laws of technology do not determine form, there is always a possibility of choice, and in that lies the possibility of beauty. Beauty and aesthetic value could be realised through the means of technology, but only if it were the instruments of artistic creativity: A mature culture speaks only the language of art'."[104] Behrens' ideas and activities were therefore of some importance to the Bauhaus. Walter Gropius in his essay *Concept and Development of the State of Bauhaus* (1924) acknowledges the school's debt to "Ruskin and Morris in England, van der Velde in Belgium, Olbrich, Behrens... and others in Germany, and finally the German Werkbund, all of whom consciously sought and found the first ways to the reunification of the world of work with the creative artists."[105]

As Ian Chilvers says, Behrens has been credited with originating the form of Design specialisation related to objects produced by industrial means, which is commonly known today as Industrial Design.

Pye: design - arrangement, geometry, durability, feasibility; economy and appearance

There was a group of German painters in the beginning of the nineteenth century who, due to their affectation of biblical dress and hairstyles was named originally as the Nazarenes. The nucleus of the group was established in 1809 when six students at the Vienna Academy formed an association called the Brotherhood of St Luke (*Lukasbrüder*), named after the patron saint of painting.

They believed that art should serve a religious and moral purpose and that since about the middle of the sixteenth century this ideal had been betrayed for the sake of artistic virtuosity. In their desire to return to the spirit of the Middle Ages, the *Lukasbrüder* not only looked to late mediaeval and early Renaissance art for stylistic inspiration (they admired in particular Dürer and Perugino) but also wished to return to a learning and teaching programme based on the workshop rather than the academy. To this end they lived and worked together in a quasi-monastic fashion.

As a coherent group the Nazarenes had ceased to exist around 1830, but their ideas continued to be influential. Peter von Cornelius

[104] Ibidem, pp.140-1.

[105] F.WHITFORD, op.cit., p.23.

(1783-1867), a German Nazarene painter, had moved in 1819 to Munich, where he surrounded himself with a large number of pupils and assistants who in turn carried his style to other German centres. Friedrich Overbeck (1789-1869), another German Nazarene painter, kept his studio in Rome which was a meeting-place for artists from many countries, e.g. the French painter Ingres (1780-1867) admired him, and the English painter Ford Madox Brown (1821-1893) visited him. Brown, Dyce and Pugin were among his supporters and there were affinities between his inspiration and those of the Pre-Raphaelite Brotherhood.

The Pre-Raphaelite Brotherhood was the name adopted in 1848 by a group of young English artists who shared a dismay at what they considered the moribund state of British painting and hoped to recapture the sincerity and simplicity of early Italian art, i.e. before the time of Raphael (1483-1520) whom they saw as the fountainhead of academism. Brown was closely allied with the Pre-Raphaelites, though not at any time a member of the Brotherhood.

The movement had a strong literary flavour. The painters engaged in that movement defined the aims of the brotherhood as follows:

(1) to have genuine ideas to express;

(2) to study Nature attentively, so as to know how to express it;

(3) to sympathise with what is direct and serious and heartfelt in previous art, to the exclusion of what is conventional and self-parading and learned by rote; and

(4) most indispensable of all, to produce thoroughly good pictures and statues.

The kind of pictures they hated were academic works and the paintings depicting scenes from daily life e.g. landscape, portraiture, and still life. In 1850 the group was subjected to violent criticism and abuse. However, the Pre-Raphaelites were defended by John Ruskin and attracted numerous followers such as William Morris, who particularly read Ruskin and Pugin writings.

Augustus Welby Northmore Pugin (1812-1852) was an English architect, designer, writer, mediaevalist, and one of the key figures of the Gothic Revival and Victorian design as a whole. He was an established designer before he was 20 years of age. He believed that the art of a country reflected its spiritual state. This notion was forcefully promulgated in his book *Contrasts* (1836) with which he became famous. His ideas were influential on Ruskin thoughts.

He was a brilliant and prolific draughtsman with natural eye for design. He admired Classical and High Renaissance art, althought it was unsuitable for Britain and British students, according to Macdonald.

"The real source of art is nature, and the best artists of every nation and period have taken it as their standard, and represented it under the peculiar aspect of their locality and period... Now the School of Design [in London, under the Charles H.Wilson's directorship, 1843] in its present form... is in fact a hindrance to the revival of the true taste and feeling, for the mind of students are perverted by copying the same stale models that have been used for years without producing a single artist capable of designing anything original and appropriate."[106]

Pugin was the most notable advocate of principles of Design in the Victorian period, and his writings greatly influenced the 'South Kensington circle'.[107]

By the late 1840s, the Central School of Design in London came under considerable criticism like that from Pugin. Henry Cole led a constructive campaign for reform of the school through his *Journal of Design*, and with the excitement and adventure of the Great Exhibition of 1851, which Cole masterminded from the Royal Society of Arts, there came a new vision of the School's future. By 1853, changes had been brought about, and the Normal Training School of Art, as it was renamed, had extended itself to Marlborough House on its way to a permanent home in South Kensington. The aesthetic values behind the architectural and ornament works in that period in London stem largely from Cole's patronage, and the theories and practices of Owen Jones in his*The Grammar of Ornament* (1851), Gottfried Semper, in his *Science, Industry and Art* (1851) and the several reports on Design written by Richard Redgrave, the Director of the School. The work of the school during these years was seen as leading practice, as integrating art, design and manufacture, and as exemplifying advanced theoretical ideas.[108]

Macdonald quoted some of Redgrave's thoughts about Design: "Utility, which must be considered before decoration;... design must be bad which applies to the same constructive forms and ornamental treatments indiscriminately to different material;... each material has its own peculiar constructive qualities". As Macdonald goes on, "it is interesting to note that unlike William Morris, and like the rest of South Kensington circle, Redgrave did not condemn machines. He approved of them, but admitted that 'it is a matter of extreme difficulty and one

[106] S.MACDONALD, op.cit., p.125.

[107] South Kensington Circle was the expression used by the public from 1857 onwards to refer to the Department of Science and Art. For instance, the popular description of the Department's Course of Instruction was 'the South Kensington system', and of its officials (Henry Cole, Owen Jones, Gottfried Semper, Richard Redgrave and others) 'the South Kensington Circle'.

[108] The Royal College of Art Prospectus 1990, p.6

requiring long experience in manufacture, to tell how a design will work'."[109]

In 1898 Queen Victoria granted the Normal Training School of Art, former School of Design, the title of Royal College of Art, and there was a reason for this new name: in 1857 the painter Edward Poynter (1836-1919) became Principal and the bias towards the fine arts increased to such a extent that in 1888 more than three-quarters of the 426 students were fine artists. In 1898 Walter Crane (1845-1915) became Principal and in 1901 a complete reorganisation divided the College in four schools: Architecture, Painting, Sculpture, and Design. The last having as Professor of Design William R. Lethaby (1857-1931). In 1967 the Royal College of Art became a university institution. From the sixties to the present the Royal College has been engaged on Design Research for Government departments and other important bodies. And is without doubt one of the most important design education institutions in the world today.

David PYE, architect and industrial designer, for many years was Professor of Furniture Design at the Royal College of Art, London. In his book **The Nature of Design** (1964) he specified six conditions which must be satisfied in any design:

(1) It must correctly embody the essential principle of arrangement.

(2) The components of the device must be geometrically related - in extent and position - to each other and to the objects, in whatever particular ways suit these particular objects and this particular result.

(3) The components must be strong enough to transmit and resist forces as the intended result requires.

(4) Access must be provided (this is a special case of 2 above).

These four together will be referred to as the requirements of use.

(5) The cost of the result must be acceptable. This is the requirement for ease and economy.

(6) The appearance of the device must be acceptable.

This is the requirement of appearance.

Design, in all its fields, is the profession of satisfying these requirements. The architect, however has the additional task in effect of inventing the objects before he begins.[110]

Let us look at these requirements more closely: with regard to the first requirement Pye says that various aspects of arrangement of mechanisms are dealt with in the science of kinematics, which deals with motion or holding still without reference to force and mass; that is to

[109] S.MACDONALD, op.cit.,p.235.

[110] David PYE, **The Nature of Design** (London: Studio Vista, 1964) p.21.

say it concerns itself with the movements of the components of devices but no with their strength or substance. The essential principle is ultimately concerned only with the capability of the things in the system to transmit forces of as yet unknown strength to the desired places and in the desired directions, and to modify them as desired. This capability depends on the arrangement of the things.

The second requirement says that the geometry shall be what the particular result entails, sets limits to the designer's choice of shape in ways which are best illustrated by a detailed example. It will be seen that the limits leave still an infinitely wide freedom of choice in the matter of shape.

The third requirement expresses that the forces involved will originate both from the intentional input of energy as the system is used and also from unwanted sources of energy. This requirement obviously affects the size of each component, and in combination with the first two conditions, the essential principle and the geometry, it may begin to shove the designer in the direction of one shape rather than another.

The fourth requirement of use is that for access. We think of a device as a self-contained system, but of course no system is self-contained. Every device is a subsidiary part of a more extended system. Since any device will have to become a component of a larger system of several in turn, its geometry must be suited not only to its own proper result but also to the result of the extended system or systems.

The fifth requirement, ease and economy, has very wide implications. Theoretically it is possible to design for a result without the design being influenced in any degree, either directly or indirectly, by economy. In practice this does not happen. The influence of economy in design is universal. But economy here implies something more than saving money.

The sixth condition is that the appearance of the device must be acceptable. This conflicts headlong with the requirements of economy and it is heartening to see how so many designers and manufacturers consistently expend useless work on satisfying it... There is no realisation that they are an affair of art, and not less important than design in the large, for without them the best of design is entirely wasted so far as appearance goes.[111]

In modern usage, the term design connotes the planning of any artifact whether for use or for show and involves the adaptation of any system so as to obtain at least an intended result or to avoid unwanted results. "The Theory of Functionalism, which was popular in the early 20th century particularly in architecture and certain branches of

[111] Based on D. PYE, op. cit., pp.21-37.

industrial production, maintained that the requirements for use and economy of themselves wholly determine optimum design. It was expressed compendiously in the phrase 'form should follow function'."[112]

Later the more level-headed view prevailed that these other requirements restrict possibilities as to appearance and may act as a guide but do not determine optimum appearance. As David Pye has said: "A surprisingly large proportion of manufacturing time in nearly every field is in fact taken up with useless work catering for the requirement of appearance."[113]

Bonsiepe: design is design

The dominant movement in European and North American art and architecture in the late 18th and early 19th centuries is known as Neoclassicism. It is characterised by a desire to re-create the heroic spirit as well as the decorative trappings of the art of Greece and Rome.

A new and more scientific interest in Classical antiquity was one of the features of the movement, and it was also seen as mounting a reaction against the light-hearted and frivolous Rococo style. In France the Neoclassical style held strong moral implications, being associated with a change of social outlook and a desire to restore civil life.

In fact the forty year period from 1775 and 1815 marks one of the great upheavals of Western history: the rebellion of England's North American colonies transformed into a genuine revolution (1775-1783); in France, during the extreme economic and political crisis, the middle classes assumed power, then the French Revolution (1789), "which was supposed to bring about a new era of freedom for all, fell a victim to its own most successful military leader Napoleon Bonaparte (1799-1815); and his colossal military force was unleashed upon the continent of Europe, and it swept the Baroque monarchies great and small into the discard, dissolved the thousand-year-old Holy Roman Empire, and threatened Russia on the one hand and England on the other."[114]

As Hartt remarks, to this revolutionary period, Neoclassicism was a way of life, affecting not only the arts but also all aspects of existence from religion to the way ordinary men and women dressed. Moreover, it was not imperial but republican Rome that the revolutionary period attempted to revive. Despite its origins, Neoclassicism survived both the

[112] H.OSBORN, op.cit. p.312.

[113] D.PYE, op.cit., p.37.

[114] F. HARTT, op.cit., Vol.II , p.302.

American and French Revolutions, and Napoleon Bonaparte, persisting as a fashion throughout the Continent and England well into the nineteenth century.

The French Neoclassical theorist Marc-Antoine Laugier (1713-69) in his essay *Sur l'Architecture* emphasised the logic of construction as the basis of architectural design and looked back to the primitive hut as the archetype of classical architecture. Laugier owed much to J.L. de Cordemoy's *Nouveau Traité de Toute l'Architecture* (1706) which advocated the fusion of the Greek and Gothic systems. As Jervis points out, these two written works can be considered the basis or embryo for ideas of Functionalism.

The Functionalism movement in the eighteenth century can be mainly represented by the Italian architects Carlo Lodoli (1690-1761), Andrea Memmo (1729-93), and Francesco Algarotti (1717-64); in the nineteenth century by the American sculptor Horatio Greenhough (1805-52), the American architect Louis Henry Sullivan (1856-1924), who formulated the main Functionalism slogan 'Form follows function'; the French Eugene Viollet-le-Duc (1814-79); the English architects Augustus W.N. Pugin (1812-52), who believed that the architecture of the 1830s should be based on the logic of construction, a doctrine preached with even greater eloquence by John Ruskin (1819-1900), and Owen Jones (1809-74); the Austrian Adolf Loos (1870-1933), who became notable by his criticisms of ornament in architecture in his essay *Ornament and Crime* (1908). And in the Twentieth century, Functionalism ideas were clearly present in the works of architects and designers like Muthesius, Behrens, Le Corbusier and in the seminal ideas of many artistic and architecture movements of this century.

The encouragement of the use of pure, simple forms, logic of construction, adequate use of materials and proper means of production were some of the main issues for the emergence in the 1920s of a definitive Functionalist style, which pretended to base itself on Sullivan's statement 'form follows function'. Functionalism tradition on the design theory claimed "that manufacturing methods determine not only the means of production but also the forms of the products."[115]

Heskett states that in the early 20th century "at the same time as ideas on standardisation and rationalisation were evolving, a series of European art movements Futurism, Purism, Constructivism [Modernism and Neo-Functionalism], attempted to redefine aesthetic form and its function in relation to industrial civilisation. Although at first sight these two developments might appear antithetical, one based on the pressures of industrial production, the other on artistic theories

[115] P.SPARKE, op.cit.,p.5

and values, there is often a striking similarity in the concepts and terminology that each adopted. Paradoxically, the roots of many important elements in the process of aesthetic re-evaluation can be traced to anti-industrial philosophies of John Ruskin and William Morris."[116] Functionalism, as a slogan and a style, spread from France and Germany in the 1930s, becoming international commonplace, and the German school Bauhaus took an important role in that action.

In 1919 Walter Gropius (1883-1969) was appointed director of the School of Arts and Crafts and the School of Fine Arts in Weimar in Germany. In the following year these schools were combined as the Staatliches Bauhaus Weimar, and Gropius was confirmed as its director.

According to Macdonald, "the course which Gropius established there was the most purposeful ever practised in art education, planned to foster creativity, analysis and appreciation of art, craftsmanship and technology in order to produce the artist / craftsman / industrial designer. After six months' preliminary instruction (*Vorlehre*) on theory of form together with experiments with materials, each student, having signed articles of apprenticeship, served three years in a Bauhaus workshop receiving craft instruction (*Werklehre*) and instruction of form (*Formlehre*)... Talented pupils could attempt the more difficult Bauhaus apprenticeship... the structural instruction (*Baulehre*), which consisted of gaining experience of additional crafts in the workshops, working on building sites, and experimenting in the Bauhaus Research Station and Design Studio."[117]

"The basis of Gropius' concept of art education is sociological. The frequent use in his writings of such words as collaboration, coordination, combination, community, integration, interrelation, and standardisation leaves no doubt on this score. Whereas Morris desired a craftsman's culture, Gropius not only wished to tear down the barriers between art, craft, architecture, industry, and society, but also the barriers between arts and art education."[118]

Attempts by former Bauhaus teachers and students to continue to revive Bauhaus ideas and methods after 1933 [when it was closed down by the Nazi regime], demonstrate the strength and tenacity of the school's influence. The New Bauhaus founded by Laszlo Mohly-Nagy (1895-1946) in Chicago in 1937, the activities of Gropius at Harvard, Josef Albers (1888-1976) at both Black Mountain College and Yale, the establishment of the Hochschule für Gestaltung in the West Germany city of Ulm, with a former Bauhaus student, Max Bill (1908-), as its

[116] John HESKETT, **Industrial Design** (London: Thames & Hudson, 1980) p.85.

[117] S. MACDONALD, op.cit., p.315.

[118] Ibidem, pp.316-17.

first director, are the most visible results of that influence.[119]

"The idea that the designer needs a rigorous training rather than simply being left to fulfil his individual creative potential was a common feature of a number of design educational experiments that took place in the post-second World War period. Notable among them was the work of the Hochschule für Gestaltung... where the emphasis moved away from creativity and simple problem-solving towards a vision of design as a much broader, cultural phenomenon and of designers as the transmitters of that culture."[120]

Still as Sparke suggests, under the directorship of Max Bill the Hochschule can be seen as a natural extension of the prewar Bauhaus, but with all the modifications necessary in a new age. It was with the resignation of Bill in 1956 that the emphasis changed, however, to the broader, more culturally based approach to design education with which Ulm is most commonly associated.

From the mid-1950s onwards the school emphasised in the industrial design and building departments - the design of industrial products and; in the visual communication and information departments - the design of visual and verbal means of communication. In addition to workshop practice the foundation course established by the Argentinean Tomas Maldonado (1922-), laid a strong emphasis on mathematics, sociology and cultural history, and all the four studio departments also stressed the role of socio-cultural history within their syllabuses.

The philosophical premises of the teaching at Ulm, as outlined by Maldonado, were founded on a view of design as both a systematic process and as a form defined as the communication of symbolic meanings. Maldonado believed that design was a process which could be systematised and he promoted it as a means of avoiding the inevitableness of formalism in design.The role of aesthetics was minimised and formalism, in the Bauhaus sense, totally rejected. The method of form instruction at Ulm was highly mathematical in nature and this led Ulm designers to evolve a highly geometric, neo-functionalist aesthetic for their products, a neo-rationalist style which characterised in fact much German design in this period. Maldonado and his colleagues supported the Functionalism as a theory of design and not as a style. They believed that design equates needs with production and thus avoids the 'neo-kitsch', which they saw as an inevitable part of postwar capitalism.

The social and economic context of design was also of central importance to Hochschule educational theory: approximtely 27 per cent

[119] F.WHITFORD, op.cit., p.197.

[120] P.SPARKE, op.cit.,p.167.

of the students' time was devoted to sociology, economics, political economy, psychology and ergonomics. This encouraged a critical approach towards the role of design in modern society and it was this which determined both the successes achieved at Ulm and, eventually, to the demise of the school. The heads of the, by then, three departments - Tomas Maldonado, Claude Schnaidt and Gui Bonsiepe were all themselves highly critical of the role that design played within the capitalist economy, which stressed demands rather than needs.

By 1968, the year in which it was closed down, the school was split internally by conflict about the role of scientific method in design. The radicalism and theoretical rigour of the design educational experiment at Ulm remains unsurpassed, however. Attempts have been made to repeat the experiment on new ground, in Germany and Italy, but nothing has yet emerged to equal the strength of commitment of the Hochschule.[121]

When the Hochschule was closed in 1968 some of the individuals involved, including Maldonado, travelled to Italy where they continued their teaching, particularly in Milan and Venice. Others remained in Germany and others went to South America (in particular Gui Bonsiepe).

The career route of the German designer Gui BONSIEPE (1934-), properly Georg Hans Max Bonsiepe, guaranteed his position as an interlocutor with special conditions to analyse industrial design in the world panorama and especially in Latin America. Bonsiepe graduated from Hochschule für Gestaltung, and between 1960 and 1968 he was lecturer there in the subject Theory of Design. He was the editor of the HfG Journal, "documents of permanent value for anyone connected with design education."[122] He was adviser for several international organisations, lecturer in European, North American, Asian, and Latin American universities; vicepresident of the International Council of Societies of Industrial Design (ICSID) from 1973 to 1975; and author of many books, amongst them *Teoria e Practica del Disegno Industriale* (Milan, 1975); *Diseño Industrial, Tecnologia y Dependencia* (Mexico, 1978); and *Tecnologia da Tecnologia* (São Paulo, 1983).

He has lived in South America since 1968, and before moving to Brazil in March of 1981, he spent some time in Chile (1968-1973) and Argentina (1974). He came to Brazil in order to attend an invitation from the CNPq, the Brazilian Council for the Scientific and

[121] Based on P.SPARKE, op.cit.,pp.167-70.

[122] Kirti TRIVEDI, **Readings from Ulm: Selected articles from the Journal of HfG** (Bombay: Industrial Design Centre, December, 1989). Published on the occasion of the International Seminar 'Design Education: Ulm and After'.

Technological Development, to develop Design in Brazil. He was one of those responsible for the creation of an associated workshop of product development/industrial design, in Florianópolis, capital city of the Santa Catarina State, up to the present one of the most important Brazilian organisations of design practice and design education. From 1987 to 1989, Gui Bonsiepe was in San Francisco, USA, attending a course in the Action Technologies Enterprise - a software house which develops computer programmes for IBM and Apple/ Macintosh personal computers, with a view to introducing such knowledge into a Brazilian cultural and technological context.[123]

Since Bonsiepe arrived in Brazil he has been involved in many CNPq research projects; has taken part in the organisation of national design contests; has promoted and led design up-dating courses to professionals of design and design education; and has edited some of the most important Brazilian publications on design: *Desenho Industrial para Pessoas Deficientes* (1982); *Um Experimento em Projeto de Produtos* (1983); *Prevenção de Acidentes e Componentes para Edificações Habitacionais* (1984); *Metodologia Experimental: Desenho Industrial* (1984); *Estrutura e Estética de Produtos* (1986); *Design de Máquinas Especiais* (1986).

Furthermore he has written several articles for Brazilian scientific, technological and design magazines. Among such articles I would point out the following: *No Futuro, a Reformulação* (Feb.1989); and *O Futuro do Design na América Latina* (Oct. 1989). The latter an extract of Bonsiepe's essay *Diseñando el Futuro - Perspectivas del Diseño Industrial y Gráfico en America Latina*, addressed to an audience mainly composed of computer scientists, mathematicians and engineers at the Monterrey Institute of Technology in Mexico, in April 1989.

In the article, **No Futuro a Reformulação**, Bonsiepe says that "design and teaching have a common characteristic: both are oriented to the future. In the core of the theme 'the education of design' the question arises: how do we train innovators?... The present educational institutions, have not given a satisfactory answer to this question. The reason for this critical situation is the paradigm over which the present teaching is based, whereby knowledge is one mental 'thing', storage in the pupils' mind. Therefore, teaching would consist, mainly, in the transmission of information and knowledge to the students, as if teaching itself were something similar to the process of input data in a

[123] Translated from Bonsipe's interview to Adélia BORGES and João Carrascosa. *Gui Bonsiepe: uma análise para reflexão*. **Design & Interiores** (São Paulo: Projeto Editores Associados Março/Abril de 1988, nº7). pp.55-9.

floppy disk."[124]

Still in that same article, Bonsiepe goes on to say that "Design is important because it is one of man's constructive possibilities, similar to language. Beasts do not have language. Beasts do not make design. Only man has language. Only man makes design... design is the basis of the new education... It is necessary to invent, identify, define, and integrate the basis of design. That would be the task [of education] in the 1990s in order to enter the 21st century better prepared. In Latin America we could, perhaps, make a contribution and resist the increasing our peripheral condition... Underdeveloped does not mean lack of knowledge or of access to information. It is ignorance of our ignorance."[125]

In the article **O Futuro do Design na America Latina**, Bonsiepe summarises his views about design connotations saying that: "design is, in first, second and third place, design. With this statement Bonsiepe means that design is not art neither science, and explains why:

For most Latin American people, "the traditional association between design and drawing prevails; what it takes to imagine the designer as a skillful producer of sketches, who represents or visualises 'ideas', a creator of beautiful and elegant strokes... For that reason we fall, frequently, into the trap of interpreting design as an art manifestation... The statement that design is not art usually produces excited criticisms. However, against that largely shared opinion, I say that design is, in first, second and third place, design; and is not art neither with a capital nor a small letter. I do not believe I am wrong when I say that the interpretation of design as art is peculiar to the discourse of engineers, who live in a universe of Cartesian brightness characterised by its rational rigidity and methodology; everything which does not fit into the engineering discourse is art, subdued to the realm of the irrational and of the emotions. It would be a mistake, however, to affirm that those scientific discourses transform the project activity into a scientific activity. Design is not, and can not be, a science. Design is the concrete intervention in a reality to create, develop and produce. It is possible to have scientific discourse over design, but design is not science."

Bonsiepe's primary concern has always been industrial design, in the following quotation it becomes apparent that he realises that design, nowadays, is no longer restricted to a specific means of production and,

[124] Gui BONSIEPE, *No futuro, a reformulação*, **Design & Interiores** (São Paulo: Projeto Editores Associados, janeiro/ fevereiro de 1989, nº12) p.125.

[125] Ibidem.

adds that in the educational ground, the insistence of this narrow approach can lead to damaging results: "the age of serial production has finished. With new technologies without precedence, new boundaries require exuberant strategies of design. If we do not wake up, our debt with the rest of the world surely will increase, with social, political and personal consequences... Resignation is an anti-design state."[126]

In both articles, Bonsiepe did not make any reference to British design educators like, for example, Bruce Archer or Ken Baynes. However, he seems to be synchronised with their design educational discourse, when he: (i) makes analogy between human language and design; (ii) says that design is the basis of the 21st century education; (iii) suggests that design is an specific area of human knowledge on its own; and (iv) that design is not only related to industrial design. But, unfortunately, even Bonsiepe in the original text of his articles uses the English term design, endorsing the idea of those Brazilian design educators who believe that in Portuguese language there is no word to express the idea of design whether 'with a capital or a small letter'.

As Gui Bonsiepe is a man who often uses the term design in several languages (at least German, Spanish, English and Portuguese), and, as he is a very influential personality in Brazilian design arena, I think that it could be expected from him the appropriate use of the terms *desenhar*, *desenho* and *desenhador* when he wanted to refer to design, design and designer, in his Portuguese texts. I believe that if he had adopted such an attitude he would have helped Brazilian design educators to understand how to use their own language to discuss and describe their own design issues, as he has did towards other basic Brazilian design education aspects.

Throughout the last section I grouped together a wide range of ideas expressed by Art and Design educators from different periods of history and cultural contexts. It was not my intention to inquire into the field of the formal or concise meanings of Design in order to make precise or definite any selected account. On the contrary, it was intended to demonstrate how Design in Western culture has been formed in the minds and thoughts of Art and Design educators in order to establish its general purposes or simply to give a description of the act, process, techniques, teaching aims of Design. In conclusion, I was not concerned with Design definitions because, as Penny Sparke puts it, the available definitions of design are varied, complex, contradictory and in a state of permanent flux. My actual concern was with the descriptions and cultural concepts of Design given by those who have been

[126] Gui BONSIEPE, *O futuro do design na América Latina*, **Design & Interiores** (São Paulo: Projeto Editores Associados, outubro de 1989, nº16) pp.139-41.

responsible for transmitting its theoretical and practical knowledge, because "design is determined by the outside forces that have shaped it and by the contexts within which it has manifested itself, as well as by the numerous faces it has presented to the world."[127]

In the next chapter I shall be dealing with the written language used by Brazilian design educators. Four pieces of work and a set of open letters on design were analysed and compared focusing the usage of the authors' terminology to to express their ideas towards the development of design education in Brazil.

[127] Penny SPARKE, **An Introduction to Design & Culture in the Twentieth Century** (London: Allen & Unwin, 1986) p.xiii.

CHAPTER II

WHAT DESIGN HAS MEANT TO BRAZILIAN DESIGN EDUCATORS

An appraisal of four written works on Design

December 1992 will be the date in which Brazilian design education officially celebrates its thirtieth anniversary. Throughout these almost three decades Brazilian design education has changed too little in its essence, despite the isolated efforts of some educators.

The first decade (1962-72) was spent importing, adapting and adjusting the German 'Ulm Model' into the Brazilian cultural context. During this period only the Manuel Francisco Ferreira dissertation was written about the importance of design for the applied arts, and nothing more was written with academic purpose about Brazilian design history, design educational experiments or teaching methods, nor was any contribution added to the design theory imported from the Hochschule für Gestaltung.

In the second decade (1972-1982) problems concerned with the identification of professional areas of design, as well as design curricula remain. But even so, many high schools were opened without special laboratories, workshops, classrooms, or specially trained teachers. Thus, Brazilian design education remained poor, but hundreds of new professionals still graduate. One book was written trying to define what design means; and one MSc dissertation was undertaken to present a new curriculum for Brazilian industrial design courses. That decade was also the foundation of the first professional associations, even though the job market did not welcome a large number of these new professional designers. This situation gave rise to the movement towards professional regulation which was placed before the Brazilian government, in order to defend and guarantee the scarcely available places in the job market

for professional designers. However, the general design education problems would carry on without a solution, accumulating into an unmanageable group of problems.

The third decade (1982-1992) seems to indicate that Graphic Design, in most regions of the country, has been developed and its professionals have found their own space in the Brazilian job market. However, the same cannot be said about Industrial Design career. Thus, design professionals and educators have started to realise that one of the ways to perhaps understand and solve this problem is to go back to design education, and to examine the base from which designers might emerge.

Two meetings of heads, coordinators and lecturers of industrial design schools were organised to debate the mounting design education problems. Nevertheless, almost thirty years after the foundation of the first design school in Brazil, design educators are still unable to be objectively critical of the problems they face. From the documents resulting from these two meetings one can only find proposals of operational order instead of philosophical basis to support and guide the design educational aims in Brazil. There are evidences, however, that they have had difficulties in doing so because Brazilian design educators did not developed yet a consensus, clear and precise design education terminology with agreed meanings and values to be used towards the establishment of a philosophy for Brazilian design education.

The main argument of this chapter is that the idiosyncratic way in which the leading Brazilian design educators have used their Portuguese written language to introduce and discuss design matters has generated and perpetuated the problems of design practice in the country, but the most negative effects are found in the educational field. It is my view that the lack of an agreed body of knowledge and terminology has originated and propagated an ambiguous design education in Brazil, oscillating between irreconcilable poles, with losses for the students.

This chapter is divided into two sections. In the first one I shall be dealing with four Brazilian written works on design: *O Desenho Industrial: sua importância para a arte decorativa*, by M.F.Ferreira; *Sobre Desenho Industrial*, by J.Redig; *Desenho Industrial: proposta para reformulação do currículo mínimo*, by G.A.Bomfim; and *O que é Design*, by W.Azevedo. And in the second section I shall be discussing a set open letters which were released after the Brazilian design educational meeting, which took place in Florianópolis in July 1988, specifically treating the question of design terminology for Brazil.

The four works to be presented in this chapter are chosen because their authors are Brazilian and design educators, and because two of

them, the Redig's book and Bomfim's MSc thesis, are among the most recognised documents developed throughout the almost three decades of design education in Brazil. Apart from the pieces of work selected to be examined in this dissertation, one can certainly find, within the Brazilian design literature, a few other books, essays, thesis, which, however, were not satisfactorily disseminated and consequently, did not become so influential.

The aim of this chapter is to examine the selected pieces of work under the following aspects:

(i) the extent to which the role of Design in the Brazilian society is understood and adequately addressed;

(ii) the level of homogeneity in the design terminology used to express and represent design education ideas;

(iii) how design educators have faced Brazilian design education whether identifying and developing an original model for it, whether in the improvement of the design educational model imported from the HfG;

(iv) the extent to which the Portuguese language and culture were undervalued by design educators when they use foreign terms instead of the perfectly suitable Portuguese ones (in these cases I have indicated in *italic* style the English term used in the Portuguese original).

Work 1 - Ferreira: industrial design, its importance to the applied arts.

In 1967, Manuel Francisco FERREIRA(1935-) presented to the *Escola de Belas-Artes da Universidade Federal do Rio de Janeiro* - EBA/UFRJ (School of Fine Arts of the Federal University of Rio de Janeiro) his thesis *O Desenho Industrial: sua importância para a arte decorativa* (Industrial Design: its importance to the decorative arts), one of the simplest, but coherent, written works on design in Brazil. Ferreira's thesis clearly reflects his background which grouped all together the sensibility of an artist, the skill of a craftsman, the ability to foresee of a designer, and the social responsibility of an educator. The importance of this work for design education in Brazil is not recognised by Brazilian design educators who, instead to revise and understand the design ideas of their Brazilian colleagues, are trying to review and understand foreign design ideas and movements which do not belong to their cultural context.

As a forerunner work on design education the Ferreira's thesis is divided into sections each one dealing with basic questions of the design history after the Industrial Revolution; the developments and achievements of industrial design in Europe, in the United States, and in Brazil; the characteristics and aims of the industrial designer; and the importance of the teaching of industrial design in art schools. This last issue seems to be the one which Brazilian design forerunners educators have totally missed, when they imported the Ulm Model.

In the introduction of his work, Ferreira makes reference to the relevance of the industrial design as a new activity. That is to say 'new activity' if one considers industrial design under the Hochschule für Gestaltung educational approach. And this is the kind of industrial design which Ferreira is dealing with. He says that the role of industrial design in the countries where, in the fifties and sixties, there were mass production industries well developed, is unquestionable. However, he suggests that in Brazil, where the mass production of consumer goods was just started, the role of industrial design could be also relevant in the development of Brazilian material culture if a specific training methods be established in preparing that modern professional, the industrial designer: "Too much has been said about that new professional activity which, being new, has deserved constant debates, studies, criticisms and suggestions concerned with its specific field of action and to its pedagogic methods of training. Several schools of art have turned their attention to that new activity in which many fine

artists, architects and engineers are more and more involved. Hundreds of schools around the world have established specific training of the new professional which emerged from the necessities imposed by the modern processes of industrialisation."[1]

Trying to explain that there is nothing new in the relationship between art and industry Ferreira says: "Man, since his early days, has made use of design as one of his means to adapt his environment, giving form to things. And this process has not changed too much. In fact, what has changed is the way in which things have been produced."[2] He goes on to say that the use of different materials throughout human history and the development of human skills and knowledge over these different materials is the main factor which enable man to create new shapes and forms and to promote new processes of production.

Taking the example of the modern mechanised processes of mass production, largely applied in Europe, Ferreira says that they contributed greatly to change the aesthetic concepts and the quality of the goods which, throughout human history were commonly made by the hands of craftsmen.

Ferreira says that on the one hand mass production spread wealth, and made the consumer goods cheaper and more accessible to the whole population, on the other hand it brought products which clearly represented the lack of understanding of that new aesthetic: the industrial aesthetic. The artistic quality of the goods in the beginning of the industrialisation was dependent on the manufacturer will, most of them without training in art or design. Ferreira goes on suggesting that the poor taste of the goods displayed at London's Great Exhibition of 1851 was caused mainly by the fact that these goods tried to imitate the artistic effects and solutions used in a craft tradition. That is to say, goods which tried to show aesthetic solutions based on handicraft.

Certainly using Pevsner as resource, Ferreira mentions that industrial design, I would say the industrial aesthetic, had its starting point at the Arts and Crafts Movement in Britain, which had, as its intellectual and artistic mentors both those who ignored the mechanised industry of mass production (e.g. William Morris), and those who believed that modern civilisation was based on machinery and that it would be impossible for any system, which intended to encourage or enable the teaching of art, not to recognise that fact (e.g. Charles Robert Ashbee, 1863-1942).

---

[1] Manoel Francisco FERREIRA, **O Desenho Industrial: sua importância para a arte decorativa** (Rio de Janeiro: Tese de Concurso para Docente Livre da Cadeira de Arte Decorativa da Escola de Belas-Artes da Universidade do Rio de Janeiro, 1967) p.3.

[2] Ibidem, p.4.

Ferreira points out that only in the late 19th century and early 20th century a new mentality arose in the approach to the aesthetic problems brought about the use of new material and new techniques of mass production, and the implications of the involvement of Art and Craft with mechanised industries. And afterwards, Ferreira, then makes reference to for instance Otto Wagner, Adolf Loos, van de Velde, Louis Sullivan, Frank Lloyd Wright, and the artistic movements which happened at that time. He also describes the importance of Muthesius, Lichtwark, and Behrens to the Art and Craft Education in the elementary and secondary German schools; and their thoughts towards a new aesthetic for the industrial goods which ought to be based on smooth, polished, and light forms, which they considered as fundamental in making simpler the domestic work of the modern housewife. From Muthesius and others, Ferreira passes to Walter Gropius and his philosophy for Art Education which would be the basis of the Bauhaus.

In the part concerned with the *Hochschule für Gestaltung* - hereafter represented as HfG -, Ferreira states interesting points: "The school, established by Max Bill, intended to give artistic training in a broad sense, not especially towards modern industry." And, using for the first time a English term, he goes on to say: "Max Bill was not just an architect, he was also a painter, sculptor, publisher, *designer*, writer and humanist. These multiple activities gave him a deep comprehension of the problems related to the links between art and modern industry. His approach, although methodical, did not imply a closed dogmatism with single solutions to different problems. On the contrary, his coherent and constructive style, is at the same time creative, fantastic and full of surprises.This is one of the controversial points of Tomas Maldonado Argentinean *designer* and theoretician, one of the HfG' leaders."[3]

The use of the word designer at this point of Ferreira's work, however, does not imply that he is underestimating the power of Portuguese terms desenhador or desenhista. On the contrary, the author is differentiating 'designer' from *desenhista industrial*. It becomes unequivocal that Ferreira, quite rightly, had the feeling that designer and industrial designer could not be used to refer the activities of a same person. That is to say a designer is not only regarding with things which must be produced be mechanised means. Further evidence of that may be found in the following statement: "There are in the United States, three hundred industrial design firms, which are dedicated not only to the mass consumption products, but also to the activities of interior

[3] ibidem, p.15.

design, graphic design, and exhibition and industrial layout, amongst other design activities. From these multiple design activities, I feel that industrial design is no longer an adequate expression to represent all that."[4] And he justifies this by saying that not all interior design can be considered industrial, in the same way that exhibition design, film presentation and certain sectors of advertising cannot be considered as mass produced goods. This very important, although simple, issue highlighted by Ferreira has always been neglected in discussions concerning the issues of design education in Brazil.

Despite the fact that Ferreira's aim was not to propose alternatives for the HfG's industrial design model, he demonstrates the ability to be critical of the imported design education model. He warns that Maldonado's thoughts were based on the training of *designers* in the strict technical sense and towards the work in group. Maldonado considers function rather than form in a industrial product when he defends that what it is necessary is 'a precise study, and methodical work towards technical solutions, specific aesthetic and economic functions'. Ferreira goes on to say that "it seems to me that Max Bill's thoughts did not take such a radical position. He was more open to debate, the essential factor to the cultural formation of man, and modern society."[5] And, expressing disappointment, he says that Maldonado's theory was adopted by the *Escola Superior de Desenho Industrial* - ESDI.

To conclude the second chapter of his dissertation Ferreira writes about the development of Industrial Design in Brazil. He remarks that in 1861 the first Brazilian national exhibition of agricultural, industrial and artistic products took place. The products displayed there clearly showed influences from London's Great Exhibition of 1851.

According to Ferreira in that exhibition there were displayed ceramic products for domestic use, already produced by mechanised means, products for construction e.g. bulky and hollow bricks, curved and flat tiles, tiles drain tubes and so on. "It is worth acknowledging the works of the *Fábrica Nacional de Louça Branca-Vidrada* (National Factory of White-Glass Earthenware) of José Gory, located in Rio de Janeiro, and the works of Pedro Antonio Survillo - from Niterói city (RJ), of Frederico Osternack - from Paraná Province, of Mariano Procópio Lage - from Juiz de Fora city (MG), and many other works from the Pará, Amazonas, Ceará and Pernambuco Provinces."[6]

Ferreira believes that ceramics was one of the Brazilian industries

[4] Ibidem, p.17.

[5] Ibidem, p.15.

[6] Ibidem,p.18.

enjoying large development at that time, and were able to compete with the best industries from abroad. He goes on to add that from our craft tradition, not only ceramics, but also furniture making and goldsmithing were significantly developed well before the Imperial Period, and were clearly European influenced. It is indeed in the furniture field, throughout the crafts manufacture and semi-industrialised production, that, as Ferreira put it, the first attempts towards Brazilian modern industrial aesthetic would happen.

As Ferreira states, until the 1930's, furniture industries were restricted to copying the out of date styles, a fact which made it difficult to produce on a large scale. From that decade onwards, the Brazilian architect Lúcio Costa (1902-1963) took advantage of certain aspects of modern mass production and technology, as a basis for his designs. Other architects like Rino Levi, Bernard Rudolfsky, and Villanova Artigas were involved in the redefining of the aesthetics in furniture and domestic goods. The architect Zanini, around 1948, designed his well known furniture line *Móveis Z* , made in laminated wood. In São Paulo city, one of the first industrial design offices in Brazil was founded, a branch of Raymond Loewly Associates, and was inaugurated the *Studio de Arte Palma*, by the artists Lina Bo Bardi and Giancarlo Polanti. In 1950, for the first time, a design course was founded at the *Museu de Arte de São Paulo*, MASP (Museum of Art of São Paulo) which, as Ferreira says, 'unfortunately was closed down two years later'.

The MASP design course aimed at training artists to design objects where the taste and rationality of the forms corresponded to progress and to the contemporary thinking. It is worth mentioning two items of its educational orientation: (i) to promote the awareness of the social function of the industrial designer, refuting the easy and harmful reproduction of dated styles and the decorative dilettantism; (ii) to emphasise the meaning of the social function which any designer, in the applied arts field, must have towards life.[7]

According to Ferreira "in 1960, the teaching of industrial design was introduced at the *Faculdade de Arquitetura e Urbanismo da Universidade de São Paulo* - FAU/USP, and furthermore some architects from Rio de Janeiro and São Paulo, were in Europe and the United States training to become *designers*. In 1962, the ESDI was founded. In that same year the first Brazilian national industrial design professional association - *Associação Brasileira de Desenho Industrial*, ABDI - was created with its headquarters in São Paulo city, and, for the first time, Brazil participated in an ICSID congress, which at that time was in

[7] Ibidem, p.20.

Paris.

In the conclusion of the second chapter Ferreira says that Brazilian interest towards a new industrial aesthetic is very recent, and therefore too much is needed to learn in this sense, especially if it is considered the stage at which the developed countries are. And he questions: "I do not know what is more difficult, to handle, the slow and progressive evolution of our own technological and artistical state-of-the-art; or to substitute the imported pattern of design education by other more appropriate to our social, cultural, and economic reality."[8] Questions which those who have lead the design education in Brazil never answered properly.

The core of his third chapter is to discuss the role of the industrial designer. Although Ferreira seems to have knowledge of the many definitions formulated in the sixties about what an industrial designer is, he himself considered that the field of work of that new professional was not yet well defined. And among the definitions he acknowledged, he chose one from a lecturer of the newly born Brazilian design school ESDI, Décio Pignatari[9]: 'The industrial designer designs technical/formal projects combining the quality of the goods with the requirements of mass production, considering the social, economical, and cultural needs demanded by a specific time, and by the community for which he is working'. Ferreira says that he selected that definition because of the passage 'social, economical, and cultural needs', and warns "...that development, however, is still marked by some technical and scientific deficiencies, which make the product of the industrial designer still inaccessible to the majority of the Brazilian population. Still there are large differences in social levels in Brazil and the majority of the population have a low standard of living. We still import machinery and technological expertise, and furthermore we have to send abroad part of the profits from the production, as payment of *royalties*. This fact, consequently, makes our industrial products more expensive."[10] I am quite convinced that if this passage of Ferreira's thesis was studied in depth the expression *desenho industrial* would not be the one to represent design in Brazil. Here there are many aspects to be carefully studied and considered in any design educational programme.

Ferreira shows his awareness of the role of industrial designer in the Brazilian society saying that the starting point for the designer work

[8] Ibidem, pp.20-1.

[9] Décio PIGNATARI, *A Profissão do Desenhista Industrial* , **Produto e Linguagem** (São Paulo, 1965, nº1), quoted by Manuel Francisco Ferreira, op.cit.,p.23.

[10] Ibidem, p.23.

to be considered is him to stop copying and adapting the aesthetic of foreign products. The copy only serves to disfigure the products originated in the developed countries and delays the identification of Brazilian own trends in the design field. Ferreira writes an important contextual and cultural statement: "The objects and things designed by the industrial designer have to have their origin in the industrial designer's people and national culture... he must be able to learn from his own original historical sources... he must know his own people, their artistic manifestations, and the systems and habits of his society. I believe that having that in mind the industrial designer would be able to communicate to his nation."[11] Fact which most Brazilian graduated industrial designers did not achieve yet.

The industrial designer not only designs forms for utilitarian products, he is part of a large team of professionals who are concerned with the form, function, low operational cost, acceptability, quality, and many other technical aspects of each product. 'The job of the industrial designer goes beyond the designing of the product; he is something like the mediator between the demands of the manufacturer, and the needs of the consumer' quoting once again one of the ESDI's famous lecturer Décio Pignatari.

Nevertheless, Ferreira once again warns that the expression *desenhista industrial* is not enough precise to define the boundaries of that new professional's activities saying: "The industrial designer cannot always be considered in relation to the mass production system and, sometimes his designs are not for the purpose of mass consumption. Taking for example the interior design and the furniture design of the *Palácio do Ministério das Relações Exteriores* in Brasília, the designers Sérgio Rodrigues, Bernardo Figueiredo and others, designed a furniture line to be produced mainly by craftsmanship and semi-mechanised means. Besides, the means of furniture production, generally, put in check many theoreticians' dogmatic assertions about industrial design. For many years to come man will still use craft to fulfil particular needs, because there is no rule without exception."[12] This statement clearly shows that if from the beginning the English terms design and designer were understood and translated into Portuguese as *desenho* and *desenhador*, specifying respectively the (i) field of human knowledge and experience which deals with the adaptation of the environment and development of the material culture of a social group, and (ii) the person responsible for designing towards the improvement of that society's environment and material culture, whatever means of

[11] Ibidem, p.25.

[12] Ibidem, p.27.

production it is appropriated. Ferreira would not have to use the expression *desenhista industrial* to refer to those professional who deals with designs which are not to be necessarily produced by mass production means: "as the designer has to face wide, multiple, and varied activities, he is not, nor should be, only a technician who designs forms, but an artist conscious of the function, utility and other aspects of a mass produced goods. The simplest object of use can have great aesthetic value, especially when the one who designed it was a real artist", paraphrasing David C.Campbell.[13] Here it is evident that, Ferreira was not talking about the industrial designer. I would say his concern was with the designer.

The last chapter of Ferreira's work is dedicated to the relevance of the teaching of industrial design. He starts by saying that teaching methods, even with the same objectives, are different not only from one country to another, but also from one region to another within the same nation. He says that the lack of artists trained to design with a view to addressing their products to mass production, demanded the establishment of a Course of Decorative Arts at the EBA/UFRJ.

Nevertheless, Ferreira shows a certain disappointment with the fact that, in Brazil, educational decisions and actions are usually thought up and carried out without consulting experts in the field or without ever promoting wide debate with those who are interested or involved with the matter in question. He says: "Recently, I had in my hands a project of regulation for the Course of Decorative Arts at the EBA/UFRJ, which suggested a change in the course's name to Course of Industrial Arts. This is an important decision and, the results of its practical application would be much better if that project had been widely discussed by the teaching staff, and the student body of the school."[14]

Ferreira argues that such a debate would be the seed for changes in the methods of the university teaching system, which he believes must be dynamic and updated, and addressed to the needs of the present context and future goals. "We cannot stay linked to old academic concepts, which are based on standard formulae and responses. This is not only a misfortune of the past but also of the present modern theoreticians, who intend to impose single dogmatic aesthetic patterns, and who seem to be the only owners of the absolute truth. Any contradictory discussion is looked at as heresy. This is not the belief which I think might be leading the university. The role of the modern

[13] David R. CAMPBELL, *Artes Decorativas e Artesanato*, in **Panorama das Artes Plásticas**. (Rio de Janeiro/Lisboa: Editôra Fundo de Cultura, 1964), quoted by Manoel Francisco FERREIRA, op.cit., p.29.

[14] Manoel Francisco FERREIRA, op.cit., p.31.

university is essential, and the lecturer's task is paramount, because he is the one responsible for changes and updating the teaching methods."[15]

Without denying the importance of industrialisation, Ferreira seems to be aware of the necessity to promote debates about the particular characteristics of design education within a country without tradition and background in the technological field. This awareness is shown when he raises the following question: "How should the process of industrialisation be approached within our university teaching?" Suggesting some answers for this question, Ferreira, based on his own art education background, gives some clues of what one can consider as a basis towards building a original Brazilian design language structure. In his opinion, the artistic experience of the industrial designer must have no boundaries. The cultural knowledge gives the industrial designer solid qualification to approach his professional problems. And to achieve that he should be familiar with techniques like drawing, painting, modelling, sculpture, engraving, geometry, geometric drawing, technical drawing, perspective, composition, and should attend lectures on theory of form, colour, perception and visual communication. When we discuss the field of action of the industrial designer, we must remember that this is not restricted to those goods which will be mass produced. So, in the teaching programmes of an industrial design course the Graphic Arts, Decorative Arts, Fire Arts (ceramics, tiles, enamel, glass etc.) Performance Arts (scenery and costume design), and other subjects should be included when necessary.[16]

With the statement above Ferreira shows the inevitable and necessary link between the education of art and design, issue that, unfortunately, was not adequately taken into account in Brazilian design education discussions.

Ferreira concludes his forerunner work on design education saying: "Progress in our time moves very quickly, bringing new knowledge, techniques and new methods every day. So we must be aware and ready to receive these changes, and conscious of our responsibilities to change our attitudes thereby giving continuity to that progress. The great contribution of the industrial designer for industry and consumer would be his wide perception and awareness to contribute to the wealth of human knowledge. Considering his multiple activities, whether in designing industrialised objects, or non-industrialised, his education and training must adhere to these objectives. We must to encourage students to research, to motivate their creative capability, and to value their own reasoning. Finally, we must understand that artistic,

[15] Ibidem,pp.31-2.

[16] Ibidem, p.34.

technical and scientific knowledge are not contradictory terms, on the contrary, they are united through the spirit of research, in a reciprocal enrichment of human thoughts and realisation."[17]

Throughout the examination of Ferreira's thesis, one can find that: (i) he knew the extent of design education role in a country like Brazil without industrial tradition and he suggests that industrial design education should be introduced as a useful tool to improve the field of applied arts first and gradually other fields could benefit from it; (ii) the text has a considerable level of coherence with the context of the moment in which it was written and also shows homogeneity in the issues related to design education questions; (iii) although there is no direct reference towards a Brazilian design language structure, Ferreira gives some evidence that should be considered as a basis for design education; (iv) in general, the text respects the Portuguese language when the author avoids the unnecessary use of foreign words. However, as Ferreira always refers to industrial design education, and to industrial designer, one cannot be sure if he was at that time convinced that the terms *desenho* and *desenhador* are the correct translation of design and designer into Portuguese.

Until recently Prof.Ferreira was invited to exam MSc dissertations on design of research students at the COPPE/UFRJ. And he himself was the supervisor of some research students. It is likely, then, that Ferreira's ideas were spread at least among those research students interested in developing the field of design education in Brazil. However his influence over the ideas of those researchers is not clear cut. And his influence seems to be less evident in other written works on design education developed outside the academic arena. Taking, for example, the work examined next, which does not mention at all Prof.Ferreira unpretentious but important work on Brazilian design education.

[17] Ibidem, pp.36-7.

Work 2 - Redig: About Industrial Design

In September 1977 the book *Sobre Desenho Industrial* [18] (About Industrial Design), one of the most important Brazilian written documents on design, was published in Rio de Janeiro. It represents the first attempts to conceptualise Design in Brazil, and it was written by Joaquim Redig to celebrate the 15th anniversary of the foundation of the *Escola Superior de Desenho Industrial* - ESDI.

Joaquim REDIG (1946-), a Brazilian designer and design lecturer who was born in Rio de Janeiro, is a former student of ESDI and from there he graduated in 1968. Also at ESDI he started his lecturing career, and he is still giving lectures on the study of Industrial Design and Visual Communication at the *Pontifícia Universidade Católica* - PUC, in Rio de Janeiro. Redig has constantly exercised conceptual activities in the field of design in Brazil through the publication of his essays and lectures, and of speeches delivered at professional and educational meetings in Brazil and Latin America. He was the first representative from Rio de Janeiro at the, now extinct, *Associação Brasileira de Desenho Industrial* -ABDI; he was involved in the creation of the *Associação Profissional de Desenhistas Industriais de Nível Superior* - APDINS/RJ (Professional Association of Industrial Designers of Superior Level/Rio de Janeiro), the first association of its kind in Brazil; and he also took part in the foundation of the *Associação Latino Americana de Desenho Industrial* -ALADI (Latin American Association of Industrial Design). Redig was one of the members of the group who studied the Brazilian industrial designers' professional regulation bill, and he took part in the group who planned the present Brazilian national design curriculum. In short, Redig can be considered one of the Brazilian outstanding design activists and intellectuals.

In the frontispiece of his first published work, Redig elaborated more on the title of his book: *Sobre Desenho Industrial (ou Design) e Desenho Industrial no Brasil* (About Industrial Design, or Design, and Industrial Design in Brazil). Where he suggests that: (i) Industrial Design as a synonym of Design; and (ii) Design is restricted to Product Design and Visual Communication. So, if Redig's book had been translated into English, it would have the following title: 'About Design: concepts and prospects of Product Design and Visual Communication in Brazil'. And, I am convinced that if Redig's book were written in English many of the design concepts presented in his book would not be so confuse and misleading. Nevertheless even the Portuguese title of the

[18] Joaquim REDIG, **Sobre Desenho Industrial** (Rio de Janeiro: Escola Superior de Desenho Industrial - ESDI, 1977).

book, for British design educators would sound familiar: one year before Redig published his work, the British design educator and theoretician Ken Baynes edited his book *About Design*[19].

However, there is no interrelation between the contents of these two works at all, despite the fact that Baynes' work also has one chapter (Chapter 2) stressing questions of nomenclatures and terminology to be adopted in Britain to define several aspects of Design. Although Redig did not refer to Ken Baynes in his bibliography, it is possible to infer that Brazil and Great Britain were, at least at that time, synchronised trying to conceptualise Design.

It seems that during the sixties and seventies the HfG's design education model, better known as the Ulm Model, encouraged movements in many parts of the world whose main concerns were the establishment, once again, of the objectives and boundaries of Design. For instance: Bruce Archer, for the academic year of 1960-61, was visiting professor at the HfG, and then appointed Research Fellow at the Royal College of Art - RCA, in London, leading a programme of research into design methods; in 1965 he published his work *Systematic Method for Designers*[20] which has been translated into many languages, including Russian and Chinese (but there is no evidence that it was translated into Portuguese). David Pye, from the RCA, published in 1964 and in 1968 respectively his books *The Nature of Design*[21] and *The Nature and Art of Workmanship*[22]. In 1969 Norman Potter, also from the RCA, published *What is a designer*[23]. In 1970 J. Christopher Jones published his famous *Design Methods.*[24] In Brazil, in the early sixties, Lúcio Costa, one of the architects of Brasília, published his *Sobre Arquitetura* [25] (About Architecture).

Redig's book follows the style of concrete poetry. That is to say, the primary consideration of Redig's book graphic design is the way in which letters and words are arranged on the page, so that they visually

---

[19] Ken BAYNES, **About Design** (London: Design Council Publications, 1976).

[20] L.Bruce ARCHER, **Systematic Method for Designers** (London: Council of Industrial Design, 1965).

[21] David PYE, **The Nature of Design** (London: Studio Vista, 1964) . In 1978 was published a second edition under the title **The Nature and Aesthetics of Design** (London: The Herbert Press,1978).

[22] David PYE, **The Nature and Art of Workmanship** (Cambridge: CUP,1968).

[23] Norman POTTER,**What is a designer : things. places. messages** (London: Studio Vista, 1st edition 1969) and (Reading: Hyphen Press,2nd revised and extended edition 1980).

[24] J.Christopher JONES, **Design methods** (Chichester: Wiley,1970).

[25] Lúcio COSTA, **Sobre Arquitetura** (Porto Alegre: Centro dos Estudantes Universitários de Arquitetura, 1962).

reinforce, or act as the counterpoint to the verbal meaning. Therefore, it is possible to assume that the first conceptual book on Design in Brazil was in the form of concrete poetry. And as Redig himself said, his work is "a proposal which formulates itself simultaneously at the verbal and visual levels (word and form) in order to crystallise the thoughts more clearly, through a structure which, more than just showing the interaction of the concepts proposed, also allows the reader to experience some of those concepts."[26]

Redig says in the introduction of his work that the "book is a result of a proposal developed and presented at the meeting *Desenho Industrial no Brasil: Conceituação e Perspectivas da Profissão* held at PUC, Rio de Janeiro, on 9th December 1976, and it is a result of his practice and reflection about what might be considered design as an activity in Brazil".[27] In fact Redig had worked on, managed and directed, between 1968-81 one of the most important design offices in Brazil: the *Programação Visual Desenho Industrial* - PVDI, and nowadays he is a successful designer.

Redig introduces his book explanaining that he had in mind to open up the subject of industrial design, proposing concepts and spreading the prospects of the profession in Brazil. His book is addressed to anyone to tackle the basic concepts in which industrial design has been involved or tends to be involved, searching the establishment of a general reference for further discussions in Brazil. However as the Brazilian history of design shows, after the Redig's book no serious discussion was made towards the evaluation of what he had proposed.

Redig starts his book suggesting something like a vocabulary or a manual which has the definitions of several terms and expressions used in his book e.g. industrial design, visual communication and others, composite names which are formed by suggestive terms, which in other expressions like 'technical industrial drawing', 'audio-visual communication', are used to identify specific techniques applied by design, as well as by other professional activities, but which must not to be confused with design itself.

Explaining the term design Redig says that if industrial design is a new and unknown profession in Brazil, the problem starts with the lack of identity which its Portuguese name gives to it, because of the imprecision of the two terms which compose the expression. Redig goes on to say: "It is treated originally of a translation problem, which the language barrier can not overcome completely, that is to say, 'desenho industrial' is not *industrial design* , because 'desenho' is not *design.*

[26] Joaquim REDIG, op.cit., p.9

[27] Ibidem.

While 'desenho' is a technique of representation, *design* is an activity which uses that technique. Where 'desenho' indicates an object, *design* indicates an objective. The French, Italian and German *designers* , for instance, have the same problem, which curiously does not exist in the Spanish language which has 'dibujo' and 'diseño', like in English *drawing* and *design* ."[28] And not only that, Redig also points out that in Portuguese language there is the term *debuxo*, which is not very useful because it does not differentiate between these two concepts: *drawing* and *designing* . This misleading idea will cause not only problems concerning the identification of design education aims in Brazil, but also will damage the own Redig's ideas about design presented in his first written work, and in his following works as well.

As Redig did not realise that design is *desenho*, and that if he wanted to make everybody understand its full meanings it would be enough to reinforce the usage of the Portuguese terms *desenho*, he predicts that the word *design* will tend, therefore, to become internationalised, and therefore Brazilians also will tend to adopt it.

From Redig's considerations about the expression 'desenho industrial' one can realise why he did not propose at that time the adoption of the English term design to name the professional activity based on the Ulm Model: "Although at socio-cultural level the adoption of the word *design* could turn out correct, at institutional level, (e.g. in the professional regulation bill) this could only be after a long process of assimilation of that word. But what are the choices? A foreign name, *design*... which can not yet be used at institutional level, or a restrictive name 'desenho industrial'... which has lost part of its meaning due to a ill literal translation from the English industrial design, or an invented name, which probably would be less still informative as the literal translation is."[29] Then, he suggests that the expression *desenho industrial* seems to be the best option. However I am convinced if he had known Ferreira arguments about such an expression, he probably, would not be so sure about his sggestion.

Having noticed that the bibliography quoted by Redig in *Sobre Desenho Industrial* does not have the authors' names in alphabetical order, as is usual, one can deduce that the books' titles were arranged according to the relevance of their content for Redig's book realisation.The two first books which appear in the bibliography are *Diseño Industrial Artefactto y Proyecto* and *Teoria e Prática del Disegno Industriale* both by Gui Bonsiepe. And, despite the fact that other books in the bibliography have not explicit in their titles the

[28] Ibidem, p.11.

[29] Ibidem, p.12.

expression industrial design e.g. *Design* by Jocelyn de Noblet, and *The Nature of Design* by David Pye, Redig's work is mainly concerned with industrial design itself. This is evident in the titles of other sources used by Redig e.g.*El Diseño Industrial y su Estética* by Gillo Dorfles, and the Ulm Magazine from the Hochschule für Gestaltung.

Thus, it is possible to infer, that the adoption of the term 'desenho industrial' to identify Design in Brazil was not only a question of Portuguese language limitations or barriers, as Redig wrongly suggested. It was also a matter related to the paradigm of the importance and role of industrial design as a paramount factor to improve and develop the societies of the third world. An ideology which brought great excitement to those people who belonged to the peripheral countries and who would assume industrial design as the ideal means (theoretically) of bringing growth, prosperity, and better standards of living to our poor societies; and the adequate means (economically) of freeing the colonial knowledge through and from our vernacular technology. Paradigm which has proved to be false.

The part in which Redig tries to give name to what he considers to be the two design fields of study and professional careers, only came to confuse even more the scope of design education in Brazil. Redig states: "Although the term 'desenho industrial' can be used to identify the activity as a whole, it does not define its two characteristic fields of action, known mainly as 'Desenho Industrial' properly, and 'Comunicação Visual', or 'Desenho de Produto' and Programação Visual"[30] which are different by: (i) The class of items which they approach - objects and equipment, and means of communication. (ii) The formal nature of these items - functionally three dimensional; and functionally two dimensional. (iii) The kind of contact which they suggest - touch and visual contact; and visual/perceptive contact. (iv) The function for which they are addressed - varied function of use/operation; and basic function is communication."[31] That is to say the design terminology suggested by Redig the expression 'desenho industrial' is used to identify the activity of *design* which in its turn has, in Brazil, the expressions 'desenho de produto' and 'comunicação visual' used to identify its two fields of study and careers of *Industrial Design.* And is worth pointing out that by 'comunicação visual' or 'programação

[30] **Programação Visual** can be translated into English as 'Visual Programming'. This term was widely spread throught Brazil and it is commonly used nowadays to refer to Visual Communication. The reason for that fact is probably because 'Programação Visual' was the expression which was shown in the name of one of the most successful Brazilian design offices PVDI, in which Joaquim Redig himself worked for a long time.

[31] Joaquim REDIG, op.cit.,p.13.

visual' he means graphic design. In conclusion for Redig the expression 'desenho industrial' and *design* are different names for the same thing, likewise with the terms 'desenho industrial' and 'desenho de produto'; and also to the expressions 'comunicação visual', 'programação visual', and *graphic design.* At this point we can ask ourselves: is such a quantity of expressions to identify Design in Brazil a consequence of the limitations of the Portuguese language? Or is it our misunderstanding of the specific role of any of these design fields of study, design professionals careers, or still design educational aims?

An analysis of the the second part of Redig's book - *Princípios* (Principles) - I think to be useful towards the understanding of what he himself considers the basis of design professional activity and educational practice. Such an analysis also shows how Redig, after had suggested that the Portuguese expression *Desenho Industrial* is the best one to identify Design in Brazil, himself started a practice which would become the common in Brazilian discussions and written texts on Design: the usage of English words when Portuguese language have terms or expressions which would suffice perfectly. Redig goes on to say: "In the sixties, when the thought about *Design* in Brazil began to be organised, at the ESDI, it was used the image of a triangle to represent the three principles which the *Design* activity is based on. Such a triangle comes originally from the classical 'Form and Function', adding 'Economy' as a more tangible data, and more coherent with our necessities as poor country which required a re-evaluation of the concepts formulated, and occasionally successful, in Europe, from the confront between the functional rationalism which came to us from Bauhaus, to ESDI, via Ulm. So a group of six issues was taken as principles of this work and considered necessary to the characterisation of *Design* which results in an enlarging of that triangle to an hexagon. To the original three points - **Form, Function** and **Economy** - were added the concepts **Man, Industry** and **Environment.** We must expand the term Function to include **Utility** and the term Economy to include **Cost** to fulfil the scope, and the aims of this approach.To gain a fuller understanding of these concepts, which in some cases overlap themselves, and in others can seem very restrictive, each one was unfolded in relation to other consequent or parallel concepts. That is to say: MAN, Consumer, necessity, society. FORM, Visual Perception, Aesthetic, Information. UTILITY, Functionalism, Use, Communication. INDUSTRY, Mass Production, Machinery, Technology. COST, Rationalisation, Productivity, Economy. ENVIRONMENT, Ecosystem, Harmony, Natural Resources."[32]

[32] Joaquim REDIG, op.cit., p.17.

From this point onwards Redig develops an original design theory, based on the six aspects remarked by him, despite the fact that his discourse is damaged by the confusing terminology proposed, and by the concrete poem language adopted. However, Redig deals with many information which undoubtedly could help to highlight some misunderstandings about the specific role of the mass production for Design as a whole. Let us take, for instance, the section where he argues about the concept Industry.

"Industry is the means which supplies contemporary man with the material and the improvements which he needs (objects, equipment, images and information), and in the variety and quantity determined by his historical situation... The preindustrial craftsman had control over his own production from the object's creation to its production. The prior planning required by mass production techniques disconnected, in time and space, the activity of creation from production, hence the existence of the *designer* as one of those responsible for the creation...'Desenho Industrial' was born at the same time as industry, that is, it arose from the problems launched by mechanised and mass production, which required prior planning of production, before operating the machine (which produces)... In this sense, the analogies between *Design* and other preindustrial activities, like furniture and objects' handicraft production, or even painting and fresco (even being considered as *Design* in a trade context) become weak through the lack of their own systematic process towards mass production...This idea of prior planning characterises the industrial factor in *Design* , independently of the quantitative results of mass production... While *designer* determines the form of products, machine is the tool which allows him to transform materials into goods. The study of *design* , which has become explicit through drawing, will only come true through the machine, in the production. In this sense, the *designer* must know how to manage the machine (like he knows how to manage a pencil), knowing it to a certain point where he can use all its potential in the production of goods."[33]

Redig goes on to say: "...the industrial system can become anti-economic in the underdeveloped countries,where the industrial equipment is used to an inferior rhythm of production if compared to the countries where this equipment was created, and considering that, here the low acquisitive power of the population determines that there will only be a small quantity of consumers for the industrial product, and therefore a lower volume of production, which increases the cost of each unit produced...To attend to the internal demand (enlargement of

[33] Ibidem,p. 22.

the internal market in marketing terms) is one of the necessary conditions for the comfortable development of Brazilian industry, which frequently works under the pressure of a restricted market - and distributed through a huge region, a fact which increases the complexity of our problem... The quantity of the poor population generates another contradiction: if in the developed countries, on the one hand, the workforce is rare and expensive because of the high standard of living, machinery is cheap because of their own know-how and large scale of production. On the other hand in the developing countries the workforce is plentiful (because of the population growth and the low standard of living) and machinery is very expensive (due to the lack of and inability to purchase of technological know-how and the restricted market). In this sense while *Design* might permit the use of the workforce in production when necessary at the social and economic level, it might also permit the use of machinery in production, when convenient and so substitute the mechanical action of man".[34] Here Redig seems to be in a dilemma: **craft production** in order to take advantage of the huge workforce available in Brazil; or **mass production** in order to enlarge the internal market and, so, industrial designers have their work demanded by the industrialists. And, this issue would be more stressed in Redig's second written work.

In 1983, Redig published another book entitled *Sentido do Design*[35] (Meaning of Design) in which Redig remains using most of his Design concepts and nomenclatures presented in his first book. He himself says, that his new work aims "to represent his search for the widest meaning of the practice of *Design* (Product Design and Visual Planning), as a Discipline (branch of the human knowledge), an Activity (man's action in his environment), and a Profession (activity exercised systematically and socially responsible for an area of human knowledge), in relation of the socioeconomic and cultural Brazilian context. The knowledge and attendance of the conditions presented by the Brazilian context are crucial for the use of *Design* as a tool in building the society. In any country with the same characteristics of ours, any person or institution concerned with relating *Design* with the needs of his country, is probably formulating concepts or looking to work in this sense, or both."[36] Redig's second written work is addressed 'specifically to those who are searching for principles to understand *Design* as an useful tool for society'. But, I ask myself how it is possible to achieve such a goal if even the Portuguese word *desenho* was not yet fully understood by he

[34] Ibidem, p.29.

[35] Joaquim REDIG, **Sentido do Design** (Rio de Janeiro: Imprinta, 1983).

[36] Ibidem, p.12.

himself?

In the title of his second work, Redig definitively assumes the usage of the English term Design instead of *Desenho Industrial*. And in the section concerned with nomenclatures he keeps his same misleading arguments when he says: "Due to the variety of terms commonly used to identify *Design* , and its specialisations; because of the fact that it is a new activity; and, as a consequence of a lack in our language (because there is not in Portuguese, as well as in many other idioms, the term *Desenho* comprising the sense of Project, like *Design* in English, and *Diseño* in Spanish), in this work I use the nomenclature officially adopted by the professional association of industrial designers from Rio de Janeiro (the first professional body to define this matter in Brazil), the nomenclature which appears in the Professional Regulation Bill, approved in the first Brazilian meeting of industrial designers, in October 1979, in Rio de Janeiro. Therefore, **Desenho Industrial** - as well as ***Design*** - is used to identify the discipline as a whole, including its two main specialisations or qualifications: **Desenho de Produto** - the term adopted to refer to the specialisation which deals with objects and means of production, or with the three dimensional aspects of a product; and **Programação Visual** - term used to identify the specialisation which deals with images and means of communication, or with the two dimensional aspects of a product".[37]

Redig continues on the same train of thought about design careers. "These two specialisations are also known in Brazil as *Desenho Industrial*, in the sense of *Desenho de Produto*, and *Comunicação Visual* in the sense of *Programação Visual*...It is necessary to note, however, that the term *Desenho de Produto* is (a) very restrictive, if it is considered a product in its classical meaning of industrial product, (because any object of use is related to *Design* , although not all are typically industrial products); or (b) very wide, if it is considered that a product is a result of any sort of production (a fact in which one would also include the graphic products from the *Programação Visual*, for instance). The term *Programação Visual* by its turn is more precise, rather than *Comunicação Visual*, because the former expresses better the sense of Project (which is inherent to *Design*)."[38]

Following this point Redig presents his verifications concerned with the process of establishment of both Industry and Design in Brazil. For instance in relation to industry, Redig says that the industrial production established in Brazil is based predominantly on imported technology and capital; and that in the Brazilian process of

[37] Ibidem, p.13.

[38] Ibidem.

industrialisation European and American models were used. As a consequence, an out of step, artificial, obsolete and inadequate industry was established in Brazil. And with relation to the situation of design education in Brazil, he says that in 1983 there were 20 high level courses on design, and it was estimated that, from around 3,000 professional graduates from those schools, probably less than one third were working.

In relation to the possibilities of using Portuguese terms to express design ideas, Redig contradicts himself in his second book when he uses the Portuguese terms *desenho* and *desenhar* in the same sense as design and to design. Proving, then, that the noun *desenho* is not as restrictive as he wrongly suggested through his arguments about nomenclature: "The majority of the national clients confirm the fact that foreign enterprises have brought their own **desenhos** ready, and because of that, in general, they do not constitute a job market for Brazilian *designers* , unless we adapt those **desenhos** to our own peculiarities, a fact which reveals itself to be somewhat secondary before the responsibilities of the whole **desenho**."

If in his previous book Redig stated that *desenho* is not design, here he appears to have changed his mind and explains the reasons why he used the Portuguese noun *desenho* in a text where normally he would use English: "It is noted, in that point, that the word 'desenho' was used in the sense of *design* and *diseño*, that is to say, not only meaning, as is usual, the representation of the 'object' - 'desenho' as a visual means of representation - but including also the sense of 'objective' as well - 'desenho' as project. So, there is a close relationship between Desenho Industrial (project) and Desenho (means of representation) in contrast with some professional thought and practice."

And in the following statement he uses the Portuguese verb *desenhar* in the same sense as to design and *diseñar*. Design, as a professional activity, "indicates three attitudes which are necessary to guide the *designer*'s practice: 1st- To Make; 2nd- To make in a coherent way; 3rd- To make in a coherent way, and useful... While we are making with coherence and utility we are creating our *know-what-for*, making the development of the social processes (and consequently political) possible. In other words:

1st) To make means ability. First it is necessary to learn **desenhar**, i.e. to know how to give form to the objects and to the environment (observing and practising).

2nd) To make in a coherent way means competency. Second it is necessary to learn how **desenhar**, i.e. to know which form might be given to the objects and to the environment.

3rd) To make in a coherent way, and useful means awareness. Third it is necessary to learn what for **desenhar**, that is to say, to which objects and environment we might give form."[39]

With reference to the factors and the basic knowledge useful to Design, Redig still considers the imaginary hexagon that he stressed in his first book. However if we compare the six basic requirements we note that he made some changes in: (i) the sequential order of these factors; (ii) in one of the terms, in the contents of some, and exchange of another. He says that **Form, Man, Utility, Society, Technology and Environment** are the six basic elements to be considered in any study of Design.

The six elements mentioned in Redig's first book were: **Man, Form, Utility, Industry, Cost and Environment.** As we can see Form was now put in first place; the term Industry was replaced by the term Technology, changing considerably the discourse; and Cost was exchanged by Society, probably due to the fact that the Brazilian economy, for a long time, has been a chaos, and thus impossible to be considered in any study of Design.

With regard to the factor Technology, former Industry, he says: "Each society belongs to a certain natural context - from where resources are provided towards the materialisation of its objects - and develops a certain cultural context - which enable it to make use of these natural resources in a certain manner, from the own abilities, developed throughout its existence. Each society has therefore a certain way of producing its objects - a technology - which is consequence of its natural and cultural context. For the *designer* , the knowledge of the technological processes is as indispensable as the knowledge of drawing techniques and of visual expression; as the Project comes true through drawing, the Product - the aim of the Project - comes true through technology."[40]

In 1988, Redig published an essay entitled *Para o Ensino do Design no Brasil* (For the Teaching of *Design* in Brazil). That essay is about Redig's concern over the chaotic picture, and the poor standard of the teaching of design in Brazil. And therefore, the institutions which sponsored Redig's essay publication, expected to encourage criticisms of Redig's essay, in order to generate further discussions to improve the situation of design education in the country. That is to say the sponsors of Redig's essay had great hopes that Redig's analyses could bring to the seminar about the role of design education in the 90's, which was

[39] About Redig's usages of the Portuguese terms *desenho* and *desenhar* please see **Sentido do Design**, op.cit.pp. 25-9.

[40] Joaquim REDIG, Sentido do Design, op.cit., p.57.

expected to take place in Florianópolis on 25 and 29 July 1988, ideas to restart the approaches on design education in Brazil.

In the Introduction, Redig says that on being called to talk about *Design* teaching in the Packaging Seminar, he began preparing his speech by collecting everything that he thought important, among his previous writings. He says that he put together all the material, sorted them out by themes, had a lot of discussion, read a little more, added some new ideas, wrote and rewrote, and the results seemed to him consistent enough to spread its content among those involved in the teaching of design. He says that he would like to receive comments about the issues of his essay in order to develop further his work by taking into consideration other experiences."[41] However, there are evidences that neither Redig has consulted Portuguese or English-Portuguese dictionaries, nor somebody criticised his essay.

Redig says that his essay is also a synthesis of his former written works and studies, but also includes some proposals from the working team SESu/Ministry of Education (composed of C.Righi, E.Barroso, G.Bonsiepe, J.R.Nascimento, O.Pelosi, and J.Redig himself) which in 1986 was called to discuss, to analyse, and to propose improvements in the teaching of design in the country. As Redig states, the SESu's report[42] "starts from the unanimous verification of the precarious situation of the high level teaching of *design* in Brazil, and the consequent difficulty of the design graduates to get the job market."[43] However, the SESu' report did not contributed at all with any modification or improvement of Brazilian design education. Actually, such a report deals only with questions of operational order, instead a philosophical approach to guide and identify the priorities of design education in Brazil.

There is a section on Redig's essay which discuss the present results from design teaching in Brazil. Redig says: "Brazilian design students are disappointed. In general they feel they are lacking in information, and are insecure about working in the job market; the new graduates are showing that they cannot cope with the problems presented by the needs of the employers because there is no accumulated or systematic *Design* knowledge. Thus, in relation to the basic tasks of

[41] Joaquim REDIG, *Para o ensino de design no Brasil*, **Design & Interiores** (São Paulo: Projeto Editores Associados, maio/junho 1988, nº8) p.104.

[42] Grupo de Trabalho Secretaria de Educação Superior/Ministério de Educação - SESu/MEC. **'Recomendações para a melhora do Ensino Superior do Desenho Industrial no Brasil'** (Recommendations to Improve the Superior Teaching of the Industrial Design in Brazil), published in 2nd September 1986, and sent by MEC to all the Brazilian Industrial Design courses.

[43] Joaquim REDIG, *Para o ensino de design no Brasil*, op.cit., p.106.

teaching, to train people, and to develop knowledge systematically, *Design* teaching in Brazil has carried out the first somewhat precariously and the second not at all."[44]

Redig goes on to remind Brazilian design educators of what he considers the main problems which make the development of design education in Brazil so difficult: "1)The lack of understanding of what *Design* means to the material culture, and the lack of consideration about that cultural aspect; 2) The lack of prestige in the manual activities in favour of the intellectual ones. This is closely related to the lack of credit, and little participation of craftsmen in the Brazilian society; 3) The lack of status of teaching as a productive activity and consequently the difficulty of the school to be economically self-supporting."[45] It is my belief that any of these three issues could be the basis to guide any fruitful discussions on design education in Brazil, but they never were. And the reason for this seems to be found in the following restrictive statement.

Redig, based on his own terminology which the Brazilian Ministry of Education, the porfessional associations and the schools themselves agree, suggests that Brazilian design schools must be denominated as *Curso ou Escola de Desenho Industrial* (Course or School of Industrial Design), and that only in the third level of education professionals in two basic specialisations *Desenho de Produto* and *Programação Visual* can be trained.

The next Redig's account seems to have value only on paper, because it is not known which Brazilian design school has adopted such an attitude: "Each design course must start from a coherent and wide conceptual basis, that is to say, its own view about what *Design* is, what *Design* means to Brazil, and how must the *designer*'s training be in each course. That conceptual basis about *Design* would unfold itself in all of the courses' framework and practice."[46] And with regard to the national design curriculum Redig makes the following points: (i) that all Brazilian design schools must put in force the new national design curriculum, which was originally planned in 1978, reviewed in 1979, approved by the Ministry of Education in 1987, and due to be in force in the second semester of 1988; and (ii) that those same schools must start the review of the new national design curriculum, because as Redig says 'the new curriculum is much better than the old one, but is still is not ideal because it is missing the disciplines of lettering design for *Programação Visual*, bionics for *Desenho de Produto*, and theory of

[44] Ibidem, p.107.

[45] Ibidem.

[46] Ibidem, p.108.

design for both'. This Redig's statement is a precise indication that questions of design curriculum planning in Brazil were always subject oriented. And this issue will be the core of the next section of this chapter.

Throughout the examination of Redig's written works, one can find mainly that:

(i) the texts are not coherent in proposing a design terminology. The nomenclatures proposed by Redig are confusing and restrictive and, therefore make difficult the understanding about of kind of design education and practice he is talking about to Brazil.

(ii) just because Redig did not want to realise that *desenho*, *desenhar* and *desenhador* are the respective Portuguese terms to the English design, to design, and designer, his written discourse is full of unnecessary foreign terms which, instead of helping the understand of his design ideas, damage the common Brazilian reader discernment about the role of Design for the developement of his/her environment and material culture.

(iii) the Ulm Model adopted as a basis for design education in Brazil, lead to view that industrial design can represent the whole are of human knowledge and experience Design; and that Design is only regarding industrial design and graphic design, and that misleading idea surely brought negative consequences towards the training of hundreds of Brazilian graduated designers, and also serious negatives consequences to the whole of design education in Brazil.

(iv) the lack of criticism by Brazilian design educators on Redig's written works, indicates that in Brazil (at least for ten years 1977/1987) nobody, based on his design educational experiences, was competent and confident enough to challenge the design terminology, concepts, and ideas proposed by Redig. Therefore, he was never able to identify by himself his own misleading ideas.

This is so true that in 1988 Redig was one of the leaders proposing changing in design terminology that he himself had suggested in 1977, to be adopted by Brazilian designers. Issue that I shall be dealing in this chapter in the section concerning Brazilian open letters on design.

The other leader in that Brazilian design terminology discussion was Gustavo Amarante Bomfim, who was the mentor of the Brazilian national design curriculum, and person who, together with Redig, have lead the last basic changes in Brazilian design education nowadays.

Work 3 - Bomfim: towards a national design curriculum

In October 1984, Geraldina Porto Witter's research on Brazilian design education, *Desenho Industrial: uma perspectiva educacional*[47] (Industrial Design: an educational perspective) had its preliminary text distributed among all the Design Schools' representatives present at the First Brazilian Meeting of Industrial Design High Schools' Headmasters, which took place in Rio de Janeiro.

So far that research has been the only piece ordered and sponsored by federal and state government bodies,[48] and undoubtedly it is the only Brazilian written academic work connecting design education with Education. However, it seems to be hardly consulted or considered during seminars, meetings, and informal discussions on design education.

Witter says in the Introduction of her research that "in Brazil, systematic studies about the teaching of design are rare, though among them there is Bomfim's MSc dissertation, which compared the syllabuses from 16 schools and presented a proposal towards the reformulation of the design national curriculum based on a model which has as its aim the prospect of attending to human needs, taking into consideration the practical and aesthetic functions of a product designed."[49] Actually, Bomfim's MSc dissertation is the only work written by a Brazilian design educator which appears in Witter's bibliography.

Witter's work contains many interesting passages on general education presented, most of them, for the first time to the Brazilian design teachers. There is one, however, which I would like to quote here: "The teacher is the key element to the success of the teaching, in whatever level of schooling or educational institution. A teaching technique is not enough, if it could not count on a trained teacher to put it into practice; a text is not useful if it could not count on the aid of a teacher to clear up students' doubts, suggesting other ways, and encouraging a critical and creative reading of it."[50]

---

[47] Geralgina Porto WITTER et alii, **Desenho Industrial: uma perspectiva educacional** (São Paulo: Arquivo do Estado de São Paulo; Brasília: CNPq/ Coordenação Editorial, 1985).

[48] That research was ordered and sponsored by the now extinct Brazilian Ministry of Science and Technology- MCT; Nacional Council for Scientific and Technological Development- CNPq , and; The Archive of São Paulo State.

[49] Geraldina Porto WITTER et alii, op.cit., p.8.

[50] Ibidem, pp.68-9.

But it is not only Witter who emphasises the role of the teacher in teaching. Ferreira as well as Redig, in their works, make that point. And so does Bomfim: "Firstly we must remind ourselves that there is not any course in Brazil to train teachers to act in the area of industrial design. The postgraduate course in Product Engineering at *the Coordenação dos Programas de Pós-Graduação em Engenharia da Universidade Federal do Rio de Janeiro* - COPPE/UFRJ, can perhaps be considered the only exception. Thus the majority of industrial design teaching staff is composed of former students, some newly graduated, and by professionals who dedicate some of their weekly hours to teaching. The latter usually base their teaching skill on the experience they have acquired from professional practice. However, as rich as their practical experience is, most of the time it is damaged by the lack of didactic planning, or simply by their inability in transmitting knowledge in a class."

Actually the role of the COPPE/UFRJ for Brazilian design higher education and practice has been second to none in Brazil. Since the seventies the Production Engineering Course, Area of Product Management and Engineering of Product, has opened its doors to those Brazilian and Latin American designers who are interested in carrying out their studies at postgraduate level, whether training in areas like ergonomics, production engineering, production management etc. or in design education itself. The role of that institution in giving training and knowledge to some Brazilian Design teachers has been very important. In the library of the Centre of Technology at COPPE/UFRJ it is possible to find the results of this work. On that library's shelves there are some of MSc dissertations and essays available which have contributed to the development of design education in the country. And one of these dissertations is the subject of this section: *Desenho Industrial: proposta para reformulação do currículo mínimo* (Industrial Design: a proposal to change the national curriculum), presented at COPPE/UFRJ in March 1978.[51] Its author is G. A. Bomfim.

Gustavo Amarante BOMFIM (1953-) was born in Rio de Janeiro and he graduated from the ESDI in 1975. In the following year he started his MSc course at COPPE/UFRJ were he was awarded the title of Master in Production Engineering. In that same year he was contracted by the *Universidade Federal da Paraíba* -UFPB in order to head the newly founded engineering oriented industrial design course. In 1980, he went to West Germany to attend a specialisation course in

[51] Gustavo Amarante BOMFIM, **Desenho Industrial: proposta de reformulação do currículo mínimo** (Rio de Janeiro: Tese de MSc COPPE/UFRJ,1978) unpublished. Note: The president of the examiners group of that dissertation was Prof.Ferreira.

Design Theory at the *Bergische Universitaet Gegamthochschule* in the city of Wuppertal. In 1984 he went back to West Germany in order to attend his MPhil course, which he finished in 1988 after presented a thesis which awarded him the PhD title. Nowadays he still is Reader in the Industrial Design Course/UFPB, in Campina Grande city (PB), and has published a number of essays and articles[52] on subjects like ecology, design methods, and aesthetics applied to industrial design.

The aim of the Bomfim's MSc dissertation, as its abstract suggests, was to establish the bases for a new curriculum for the industrial design courses, evaluating the situation of the teaching of industrial design, during the seventies, on 16 Brazilian industrial design courses. Bomfim says that in his work "industrial design is understood as an activity related to the satisfaction of the demand of industrial products and as a means to promote the technological development of the productive system. And for that analysis a model was developed which focused on the relationship between industry, products, and man; and the interaction of these factors with the industrial design itself. Finally a set of subjects which make up the new curriculum and some general criteria are presented as a guide to project activity in Brazil".[53]

The work has chapters dealing with subjects such as history of industrial design; teaching of industrial design in Brazil; a model to analyse industrial design; and a proposal towards a national design curriculum.

Bomfim, in the introduction of his work, makes very clear the kind of design which he is talking about: "industrial design, in contrast with many other engineering areas, is an extremely new activity in Brazil and all over the world. Consequently, that subject offers a wide field for study and research. Information concerned with industrial design in books, papers, handouts etc. is sparse, being only enough to say that, although since 1962 there are design schools running in Brazil, there have been less than ten books written in the whole country about that subject."[54] Actually Bomfim was very optimistic, because neither him

---

[52] Here there are some of the recent articles published by Gustavo A.Bomfim:

Os Anos 80 sem rosto, Design & Interiores (São Paulo: Projeto Editores Associados, maio/junho de 1988, nº8) pp.130-1;

A tecnologia irreversível, Design & Interiores (outubro de1988, nº10) pp.97-102;

A discussão da criação, Design & Interiores (dezembro de 1988, nº11) pp.100-1;

A subjetividade na berlinda, Design & Interiores (junho de 1989, nº14) pp.129-30;

Moderno e pós-moderno, a controvérsia, Design & Interiores (julho de 1990, nº19) pp.20-26;

Identidade Cultural em Ulm, Design & Interiores (setembro de 1990, nº20) pp.67-8.

[53] Gustavo A. BOMFIM, Desenho Industrial: proposta para reformulação..., op. cit., p.iv.

[54] Ibidem, p.2.

quotes such an amount of Brazilian books on design, nor anybody can do that nowadays.

He says that the late seventies was a favourable period to question and create an original Brazilian industrial design education, adapting it to both the realities of consumers and industry. And to achieve that he says that it would be necessary: (i) to review the Brazilian national design curriculum; (ii) to found postgraduation courses in order to train the teaching staff; and (iii) to establish research centres oriented towards industrial design activity. He says that to assume any of these aspects, and others, represents a risk, because of the lack of information available on which to base any argument. Then he raises the question: "How to propose a new national design curriculum, if there is not, even among industrial designers, a consensus about what their activity is?"[55] As we can see, the problems of ill definition of the scope of design, and the lack of an original terminology is reflected in this Bomfim's question.

In the first chapter Bomfim presents a brief history of industrial design from the Industrial Revolution to the Hochschule für Gestaltung, passing by Arts and Crafts Movement, Jugendstil, Deutsche Werkbund, Russian Constructivism, Bauhaus, and those artists and designers who were involved leading those movements. The way Bomfim approaches these matters of design history is in fact more detailed if compared with Prof. Ferreira's approach. Actually, Bomfim seems to aim so: 'We have treated the history of industrial design as a successive list of names, dates and places as if historic facts were independent elements in themselves. I am looking to present that history, characterising its facts within the economical, political, social and cultural context of their time'. And we could say that Bomfim fulfils his objective, if one considers the lack of available Portuguese written material about the history of design. Although, at that time, some of the Pevsner books were already translated into Portuguese.[56]

Bomfim goes on presenting the first steps of industrial design in Brazil, and the state-of-the-art of that activity between 1930 and 1960. However, that passage clearly shows that Bomfim probably used the same source as Ferreira.[57] That is to say, in a period of almost ten years nothing was written, academically or otherwise, about the history of design in Brazil. Nevertheless, Bomfim adds new data to Brazil's unknown and unsystematised design history, which I think is relevant to

[55] Ibidem, p.3.

[56] Bomfim used as basic source the elementary book about History of Design: Nikolaus PEVSNER ,**Pioneros del Diseño Moderno** (Buenos Aires: Editora Infinito, 1977).

[57] The source seems to be the Brazilian magazine **Habitat Nº3** (May 1951).

be quoted in this work.

"The Museum of Modern Art of São Paulo city became the main centre of activities concerned with the establishment of industrial design in Brazil, constantly concerned with putting together artists and industries, through conferences and exhibitions, which were promoted under the direction of the museum, and of professionals like Le Corbusier, Max Bill, Burle Marx, and many others. Between 1950 and 1960 the idea of industrial design received more and more strong impulses. In 1956, Max Bill, after a series of talks in Rio de Janeiro, proposed changes in the original blueprints of the Museum of Modern Art of Rio de Janeiro, suggesting that an annexe should be added to the main building from where the *Escola Superior da Forma* should run. Meeting so propitious ground, Max Bill, could not avoid the opportunity to found a tropical goddaughter for the Hochschule für Gestaltung. But although the annexe suggested by the director of the German School had been the first part of the building to be built, the idea of the *Escola Superior da Forma* was deserted through economic reasons. Meanwhile, Maldonado himself, following Max Bill's idea, had already sent to Brazil all the plans necessary to the establishment of the school."[58]

As Bomfim states many debates were organised in the late seventies at the ESDI in order to discuss themes like 'what is industrial design?'; 'what is the participation of industrial design in Brazil?' and so on: "Debates of that nature are very useful, because they remove mouldy definitions, and promote dynamic thinking about the activity in question. Nevertheless, it is notable that on the one hand, after all those years, we achieved only a small group of common concepts; and on the other a wide field of vagueness".[59] What Bomfim meant is that Brazilian professionals and students frequently use key words like Bauhaus, Function, Styling, and I would also add Design, although their meanings, significantly, vary from person to person.

Bomfim goes on to say that despite industrial design being a widely dispersed practice in Brazil, it is possible to identify two design ideological currents in the countries of the third world. "The first is related to the cultural version of industrial design as an activity with a duty towards the humanisation of the technique. This trend of thought, predominant in the developed countries, confers to the industrial designer the function of educating both consumer and manufacturer, through goods previously selected because of their formal qualities. This way of thinking is extremely harmful to the underdeveloped

[58] Gustavo A. BOMFIM, Desenho Industrial: proposta ..., op.cit., p.31.

[59] Ibidem, p.36.

countries. The lack of resources and the complexity of the basic problems are not yet solved, and demand an industrial design practice oriented to elementary questions of use, not only to aesthetic values. The practice of that idea about industrial design only satisfies the elite because they can shoulder the cost of manufacturing those kinds of goods."[60] This is what Bomfim calls the *desenho da minoria* (design of the minority) because it ignores the real needs of the whole population of the country.

With regard to the second ideological trend of industrial design, Bomfim goes on to say: "The second trend in the practice of industrial design, presently being developed in some countries of the third world, is concerned with the technological innovation area. In this case the basic problem does not refer to the formal qualities of the products, but to the capacity that they have to attend to the needs of a specific population... the programme to develop our own industrial design acquires social relevance, because it comes from local needs, and there is no compromise with the universal patterns accepted, since it is effective in attending to the population's requirements."[61]

Talking about the teaching of industrial design in Brazil, Bomfim, showing a certain disappointment, says that in order to analyse more effectively the present situation of the teaching of industrial design, it would be necessary to carry out the widest research which could check in detail the particular aspects of each school which are concerned with: the competence of teaching staff; the teaching resources and bibliographic material available in the schools; the tools and equipment which are accessible in the workshops, studios, laboratories etc., and other essential aspects. But he explains the impossibility of doing this:- "to research at that level it would be necessary to have the time and resources to which I did not have access."[62]

When Bomfim finished his MSc dissertation, there were in Brazil sixteen design high schools, most of them specifying in their names the kind of design they were supposed prepared to train: industrial design; some courses of architecture and urban planning which had disciplines on industrial design or visual communication, and; a postgraduate course at COPPE/UFRJ, which despite the fact do not deal exactly with industrial design, as Bomfim says, is "the only one which unites engineers, architects and industrial designers... and which has great importance because of the original approach to the relationship between industrial design and engineering, in contrast to the traditional one

[60] Ibidem, p.37.

[61] Ibidem.

[62] Ibidem, p.38.

architecture/industrial design and art/industrial design."[63]

Fourteen of those sixteen courses were located in the South and Southeast of Brazil. The two exceptions were the industrial design courses in the States of Maranhão and Pernambuco. The reason for this, as Bomfim says, was: "The concentration of schools in the South and Southeast regions of the country does not come as any surprise, because it is there that the main Brazilian industries are located... However what sound strange is the existence of an industrial design course in Araxá [64] city (MG), and in São Luís city (MA). The former city is important as a spa resort, and the economy is based on agriculture (corn and beans) and on cattle farming; there is practically no consumer goods industrial activity. And in São Luís, manufacturing is restricted to some old textile factories, and a few units to improve agricultural products, to tan leather, and produce soap. There are two chemical industries which represents the only expectation of employment for industrial designers."[65] This statement clearly shows that Bomfim was convinced that the industrial designer should work only within - instead of for - industries. However he says that it would be a mistake to suppose that agricultural regions do not need the work of industrial designer, being worth remembering all those agricultural equipment which that sector demands. But, without having this industrial activity, the goods will have to be manufactured in other cities which have mass production industries. Nevertheless in those regions the necessity is evident to develop an industrial practice oriented towards the local real problems.

As was said at the beginning of this section, the work of Bomfim had as its objective to present a basic study to argue for a change in the Brazilian national design curriculum. And he starts broaching this matter by saying: "The first curriculum for an industrial design course in Brazil was presented to the ESDI, and elaborated by Lamartine Oberg, Maurício Roberto and Wladimir Alves de Souza. Their proposal, however, was immediately changed by a new curriculum framework prepared with the collaboration of Karl Heinz Bergmiller, Alexandre Wollner, Aloísio Magalhães, Orlando Luís da Souza Costa, Robin Darwin and Misha Black."[66] Bomfim reminds us that at that time the ESDI had distinct syllabuses for industrial design and visual communication courses, which were treated equally only in the first year of the course.

---

[63] Ibidem.

[64] That course was linked to the "Faculdade de Filosofia, Ciências e Letras" at the "Fundação Cultural de Araxá, Minas Gerais State, nowadays closed.

[65] Gustavo A.BOMFIM, Desenho Industrial: proposta ..., op.cit., p.39 - 40.

[66] Ibidem, p.50.

As Bomfim states, since the first ESDI curriculum was in force, some ESDI students and lecturers realised the gap between the professional training offered by the school and the demands of the job market. And as a result, a self-criticism process took place and the school's activities were stopped until some research was carried out together with the industries of Rio de Janeiro, which was used as the main source for the change the course programme.

The ESDI curriculum was also used as model by the *Conselho Federal de Educação* - CFE (Federal Council for Education) in order to establish the first national design curriculum in Brazil. Then, in 1969 the Ministry of Education, in the Opinion n.408, determined that the Brazilian design high schools might have a minimum of 2,700 hours/class courses which should be completed in a period of three or six years; and recommended as part of the teaching programme the following subjects:

Basic Subjects
Aesthetic and History of Art and Techniques,
Science of Communication,
Modelling,
Drawing.
Professional Subjects
Expressive Materials and Techniques,
Expression,
Social and Economical Studies,
Theory of Manufacturing,
Study in Design.[67]

According to Bomfim that Brazilian national design curriculum was only another version, 'actually much more vague', of the ESDI curriculum. Subjects such as 'aesthetics', 'expression', 'modelling', etc. would be understood according to each schools' characteristics, and in the most diverse ways, an aspect which seems to me more reasonable and to Bomfim as well: "The facility to handle the course's framework can be a positive element for the schools, to free them of undesirable influences, since according to that document industrial design, it is understood as being an enlargement of the diploma courses in drawing and modelling."[68] In fact the CFE/MEC's document does not determined the titles of the disciplines which each school should introduce in their syllabuses, but only the subjects which should be primarily worked out. And that was the basic reason for nothing more than 62 different different names are used among the syllabuses of sixteen Industrial

[67] Ibidem, p.54.

[68] Ibidem, p.55.

Design schools, at that time. And not only that, their profile components were also different from the ones suggested by 'CFE'.

At that time the sixteen design high level courses were linked to colleges of Literature, Fine Arts, and Mechanical Engineering. The last one, a rare exception, represented by the industrial design course in Mauá (SP) and the first one, also an exception, the industrial design course in Araxá city. In a table designed by Bomfim which is presented between the pages 55 and 56 of his MSc dissertation, he compares the curriculum of each school, based on the 'CFE' national curriculum.

Bomfim says that from the titles of the subjects, it was not possible to work out the contents of the subjects and vice versa. And not always the subjects' profile contents as recommended by CEF not always correspond to the subject matter which was taught. This would depend exclusively on the particular knowledge of the teaching staff. And it is possible to note this when one compare the syllabuses from the ESDI (3,144h/class) and from the CDI/UFPE (2,760 h/class) in force between the years of 1979 and 1982.

In these syllabuses we have not present the compulsory disciplines of Studies of Brazilian Problems, and Physical Education, which were the only coincidences in that two syllabuses in terms of disciplines titles, and presumably in terms of contents as well.

At that time it would be wrong to argue that design education in Brazil was concerned only with industrial design and visual communication. The Brazilian magazine *Arquitetura* in the late seventies published Victor Papanek's article in which he proffered some advice at a philosophical and educational levels, which Brazilian design educators seem never have taken into consideration: "Everything that we do, almost all the time, is design. Design is the basis for all human activities. To plan or organise any act, towards a desired, foreseen and specific goal, that is what constitutes the design process. Any attempt to isolate design by itself goes against the inherent value of design as an original and underlying source for life. Design is to compose an epic poem or a symphony; to paint a mural or a painting... to clean up and organise your desktop... to cook an apple pie... to educate a child." [69]

As Bomfim was interested only with the Brazilian high education of industrial designers, he seems do not agree with that Papanek's view of Design: "Well, Papanek says, *design* can be so many things, that his own concept becomes null due to its wide scope. In this case what I am interested is only the term industrial design, which limits, a priori, this

[69] Victor PAPANEK, *O que é Design.* **Revista Arquitetura** , (Ano 1, nº5, pp.12- 6). In Gustavo A. BOMFIM, Desenho Industrial: proposta..., op.cit., p.59.

activity to the field of industrialised products, and mass production."[70] This statement definitively shows what kind of design education Bomfim was thinking about for Brazil, and the matters to which he was trying to link it e.g. engineering, highly mechanised industries, mass production, economic development based on modern industry, technological innovation, and so on. However, if on the one hand Bomfim's view of design education seems to be vocational, subject-oriented and unrealistic for the Brazilian general education picture; on the other hand he is very precise in his written language, leaving no room for misunderstanding (differently what happens with Redig's written language).

And not only that, it seems that Bomfim is not speaking about the same design as Ferreira, and Joaquim Redig, as we can see in this Bomfim account: "Even the expression *desenho industrial* the translation of which is more accepted in our country, is poor and generates constant semantic confusion with expressions such as *desenho técnico*, *desenho de projeto*, *desenho de propaganda* , *desenho artístico*, amongst other. In the same way some professionals call themselves *desenhistas industriais*, while others, considering the translation unexpressive, prefer to call themselves *industrial designers*...The Brazilian Ministry of Labour, in its turn, only recognises the term *desenhista*, placing in the same group a still larger figure of professionals from several activities. This chaotic situation would not in itself have major consequences had it not been for the fact it is seen as a reflex of the confused concept of *desenho industrial*... Through ignorance, the definitions become excessively vague and wide, and fail to determine the real core of the professional activity."[71]

Bomfim says that in his work he adopted the expression *desenho industrial*, believing that it will acquire a distinct meaning through its practice and not by its value by the correct or otherwise translation from the original industrial design. Actually both Bomfim and Ferreira, are very coherent and clear in the usage of the term desenho industrial.

It is possible to imagine how hard it has been in Brazil to understand Design as something more than simply to forge professionals to carry out some of the design careers. And this is evident in Bomfim next statement about design definitions: "As the definitions bring about few conclusions, I prefer to broach the problem from the object, over which that activity deals, that is to say, the industrialised products."[72]

In the section referent to his contributions, Bomfim says quite

[70] Gustavo A. BOMFIM, Desenho Industrial: proposta..., op.cit., p.59.

[71] Ibidem, p.60.

[72] Ibidem, p.61.

rightly that the training of a industrial designer depends on several factors related to cultural values of a society. However, in his next idea he states something that, it seems, neither he himself has considered when he is talking about the introduction of industrial design in Brazil, and proposing a curriculum tottally unsuitable to the Brazilian design students educational background. And this contradictory issue, is evident when he says that 'an university must reflect, in the teaching ground, how that same society runs'. Any reasonable person having an idea (i) of how the human design practice was developed, reaching the stage of a sophisticated design practice like industrial design, and (ii) about Brazilian general cultural context, would say that Brazilian design education was established wrongly. Because instead of consider the primarily design activities based on craft, it was self-importante in consider advanced design activities based on mass production industries. And regarding design curriculum Bomfim ideas shows that he did not consider that. For him, curriculum is only one of the aspects to be considered on training of designers, because a curriculum by itself, has low value in the educational system. On the other hand, he says that a design curriculum is one of the few elements in which we can instil a general application, having no particular institution in mind.[73] 'General application' which, even in countries like England, with large tradition on design education and practice, has shown to be hard to apply when the occasion of the introduction, in the late eighties, of a national design curriculum in the basic levels of schooling.

Clearly indicating that his design curriculum proposal is subject-oriented, instead students' educational background and needs, and less still the cultural values of Brazilian society. Bomfim's proposal towards a national design curriculum, like the Redig's proposal towards a Brazilian design terminology, never was seriously criticised. Therefore it was the basic source used as a basis for the planning of the present Brazilian national design curriculum, as Bomfim himself aimed.

These are the subjects which Bomfim thinks to be paramount in the training of the Brazilian modern professional designer:

> Study in Design. Design Methodology. Economics. Sociology. Statistics. Ergonomics. 2D Means of Representation. 3D Means of Representation. Theory of Materials. Processes of Manufacturing. Industrial Planning. Mathematics. Geometrical Drawing. Graphic Analysis. History of Industrial Design. History of Brazilian Industry. Theory of Information.

For each one of these subjects Bomfim gives a description of the contents which must be taught in the disciplines. These aspects deserve

[73] Ibidem, p.118.

and will receive attention in Chapter VI, and the Bomfim's design curriculum itself, which was used as a basis for planning the new Brazilian design curriculum, will be commented, in the Chapter IV, section Modernisation Without Change.

In order to conclude this section I will resort to the four aspects selected at the beginning of this chapter to study the pieces of written work analysed here. With reference to the first aspect of analysis - the extent to which the author demonstrates an understanding of the role of Design and industrial design in the Brazilian society - I would say that, although Bomfim is primarily concerned with industrial design, it becomes apparent through his writing that he has the knowledge of the importance and position industrial design assumed since the advent of the industrial revolution and throughout the history. This has not been the case of the understanding of the Brazilian context. Bomfim missed an opportunity to start the record of Brazilian design history and therefore, he would be in a better place to propose a design curriculum oriented towards students needs.

In relation to the level of homogeneity in the language used by Bomfim in his writings to express and represent design education ideas, it is my view that Bomfim reached a considerable level of coherence. He does not contradicts himself in the usage of the design terminology he selected to describe his thoughts and he let clear he was not dealing with the whole area of Design, but only with one of its sections, the industrial design. It is important not to forget, though, that he did not contributed with the creation and development of a genuine Brazilian design language in that his proposals resorted to the design education model suggested by the HfG and followed by ESDI, without challenging it. I am unsurprised with such an attitude because Bomfim seems so convinced of the excellence of the German model that he is not able to see any other alternative path, even if we consider that his thesis was undertaken ten years after the Ulm School closed down.

It is certainly true to say that Bomfim did not undervalued the Portuguese language in his work since he did not use foreign terms unnecessarily to describe the industrial design concepts.

Having said that, I would point out that if Redig, quite wrongly, did not consider Ferreira thesis to develop an original design terminology, Bomfim, quite rightly, did not consider in his thesis Redig's confusing terminology. Unfortunately, the author of the work that will be focused next did not consider any of the previous written works whether to endorse his viewpoints, whether to challenge them. The book studied in the following section is representative of an even more superficial, confusing and misleading view of design in Brazil.

Work 4 - Azevedo: what is Design

The Brazilian publishing house *Editora Brasiliense* has a series of pocketbooks called *Primeiros Passos* (First Steps), which is aimed mainly at the young people who are aware of the importance of their participation in the process of Brazil's construction. It represents the 'first steps' into the political, university, college, factory, trade or whatever area, and so it represents the link between individuals and the society to which they belong and which they have been brought up; and for which they must fight in order to make it more fair, free and democratic.

In fact this a pocketbook series has been so successful that in July 1988 it celebrated its 8th anniversary, and had published 205 titles in several fields of knowledge - from Management/Economy to Politics/ Sociology, through Art and Communication, and Education/ Pedagogy - with 4,5 millions copies published, all under the title of *O que é...*(What is...).

I would say that that pocketbook series is democratic because, as the publishers say, if the readers are not satisfied with the contents of any of the subjects published, the publisher would be pleased to study the readers' own written version of the matter in question, and so publish a new revised version about the same subject and with the same title.

The document that I introduce next is one of the titles of the First Steps Series entitled ***O que é Design*** [74], from the Brazilian painter, designer, and design lecturer W. Azevedo.

Wilton AZEVEDO is a postgraduate in Communication and Semiotics from the PUC, São Paulo city. He has his own studio where he works as a graphic designer and painter. Azevedo has already had his paintings shown in individual and collective exhibitions. He also gives lectures in graphic production and visual communication at the *Escola Superior de Propaganda e Marketing* (High School of Advertising and Marketing) in São Paulo. Since 1983 he has been developing some pioneering work in Brazil in the area of computer graphics applied to the fine arts and publishing. And among his work in that field there is the cover for the Portuguese version of the book 'Tiger,Tiger' by Alfred Bester.

Azevedo commonly writes articles on design in the main São Paulo newspapers and in Brazilian magazines like the Design &Interiores. In 1988 he was collecting his previous articles, essays and critiques to

[74] Wilton AZEVEDO, **O que é Design** (São Paulo: Editora Brasiliense, Coleção Primeiros Passos, nº211, 1988).

launch them in the form of a book.[75]

As soon as Azevedo's book was launched, a critique appeared in the magazine Design &Interiores saying that he is seeking to make an evaluation of the meaning of design activity in many historical periods, and in its many areas of influence. "Firstly, he makes an approach about the meaning of the word *design* ... His historical analysis goes through several periods, broaching not only the traditional products of consumption, but also the objects traditionally recognised as from the fields of craftsmanship...In his historical approach, he is not always clear - there are a mixture of themes such as *design* in Brazil, and other more related to performance areas like the '*design* gráfico', '*neon design* ' '*computer graphics* ' and 'foto *design.*'...Despite the fact that the book tries to follow a logical sequence, this is partly unsuccessful because of the synthesis and by the lack of historical, political and social data which were determinant factors to the several movements, reactions, and creations in those periods described. The book spreads general knowledge suitable for beginners... The wide and open nature of Wilton's view of design is made less effective by the conciseness of his historic introduction... and few are the times he approaches *design* as a complex consequence of a cultural process and resulting from many social, political, economic, and technological factors. Aimed at amateurs in architecture, communication and similar areas, the book contributes to the initial view about what *design* means, implying that what he is talking about is of an area where the achievements are common place at the aesthetic level in an industrial society... The initial approach presented by Wilson about *design* as a result of a process of industrialisation and mass production, spoils the wider view which is explored at the end of the book; it has been a long time that *design* is concerned not only with mass production and consumption, but also with opening ways for the exploration and questioning of situations and of the quality of life of the human being in industrial society...In short, in spite of its generic character regarding the wide and controversial field of *design* , Azevedo's book has merit in offering to the reader a quick initial view of the subject..."[76] I must point out that I disagree, not only with the language used by the author of this criticism, but also with most of the contents in it.

[75] These are some of the recent articles of Wilton AZEVEDO:
Do verbo ao gesto, **Design & Interiores**, (Junho 1989, nº 14) pp.127- 8.
Smetak e suas esculturas sonoras, **Design & Interiores** , (Abril 1989, nº14) pp.100- 5.
Silêncio e ruído no grafismo de Cage, **Design & Interiores**, (Outubro 1988, nº10) pp.106- 7.

[76] Guinter PARSCHALK, *O que é?* **Design & Interiores**, (Dezembro1988, nº11) p.10.

Exactly because of the characteristics of that kind of publication, Azevedo's book needed to be more didactical, more precise, written in a clear and objective Portuguese language, and the book should have a traditional graphic design.

One of the commandments in creativity is, sometimes to leave things the way they are. And this is the point: a book is a book! Even Leonardo da Vinci in his 'Treatise on Painting', despite his huge creative and design capability, designed a book which looks like a book. On the other hand the design of Azevedo's book is confuse, despite all his efforts to show something innovative in terms of graphic design. In some parts of the book there are blank spaces which suggests that there are full paragraphs missing; other times the constant changing of fonts and sizes make it difficult to read instead of easier, as usually is the main task of any graphic designer study.

If Azevedo had considered that one of the problems of Redig's books is the briefly way he organises his accounts - usually in the form of concrete poem - he certainly would have used in full the room available in the pages of his pocketbook, and would have rather defined the font and size for the text. And so, he could give more details and information about his design ideas, because it is worth remembering that the *Primeiros Passos* collection is aimed mainly at students and beginners. Therefore, I am convinced that any Brazilian design lecturer, must think twice about the contents and form of Azevedo's book, before suggesting the reading of such a book for design students. The reason for my statement follows.

Azevedo divides his book in the following sections: *Design and Desenho*; *Produção como Reprodução* (design and drawing, production as reproduction); *Origem da Arte Aplicada* (origin of applied arts); *Design Gráfico*; *Ruptura com o Passado* (graphic design, rupture with the past); *Objetos para Usar e Pensar* (objects for using and thinking); *Alguns Usos do Design* (some uses of design) and; *Design Cultural* (cultural design).

In the first section Azevedo says: "The term *design* has appeared constantly in our every day life, representing part of a new vocabulary. Many times it means something newly launched in the market, a new style commenced by a myth, or even, when we want to refer to something which is in fashion, e.g. 'have you seen the *design* of the new glasses by Pierre Cardin?'...Nowadays, many people are looking at schools of design and asking what is necessary to become a designer of the means of mass production... And in toiling with the means of mass production, we are already working with what we could call *design.* The style of the reproduction... At the moment that we change a coffee

pot, or a percolator, into an object of reproduction, it is no longer a drawing, it is a *design*... The word 'design' comes from the English and means to project, compose visually and to put into practice an intentional plan."[77] What a misleading, confusing and superficial view about Design.

Explaining what he had said before, he goes on to say: "Therefore, why was van Gogh not a *designer*?...If he had lived to see mass production, and if he had painted the Sunflowers with the intention of having the picture on the newsstands he would be a *designer* ".[78] This Azevedo explanation is not a very appropriate example because he suggests that Vincent van Gogh (1853-1890) did not live to see mass production, but in fact van Gogh lived his whole life in the 19th century, a historical period which represents, according to Arnold Pacey, the end of the first, and the beginning of the second, Industrial Revolution; and where many important events, directly or indirectly related to Modern and Contemporary Design e.g. the Great Exhibition of 1851 in London, and the Art and Crafts Movement in Britain happened. So if Azevedo had taken any artist from the Renaissance - e.g. Leonardo da Vinci(1452-1519) and his masterpiece Mona Lisa for instance - to exemplify what his view about design, he would not have committed such a temporal mistake. However, once again the example would not be ideal because, as the History shows the Renaissance artists were designers, in both the strict and the broad senses of the word, despite not having knowledge about for instance mass production, marketing, styling, ergonomics and other things closely related to the modern design.

Using a very symbolic language, which most of the time misleads the reader, Azevedo says: "The aesthetic of the end of century [without making any reference to which century he is talking about] became a tool which was used to try polishing everything which had already been discussed and made by man... *Design* first appears in the world when man begins making his first tools, and the *designer* continues to toil with tools. The difference is that his tool today is the act of producing information itself."[79] This passage seems a poor translation of the original Portuguese text, but it is not! Even in Portuguese that paragraph is also hard to be understood.

To conclude the first part of his book, Azevedo says: 'Actually, what should be done to help understand what *design* is, is to draw the attention to the processes of mass reproduction'. Once again in that

[77] Ibidem, pp.8-9.

[78] Ibidem, pp.9-10.

[79] Ibidem, p.11.

statement, Azevedo's idea is not clear. One can ask: (i) Does not mass production implie automatically in reproduction of something? So 'mass reproduction', even in Portuguese, is a redundant expression; (ii) What 'design' is he talking about? The English term design? The new professional project and artistic activity which appeared in the late 19th century which was concerned with a new kind of aesthetic applied to all sort of goods and buildings,which would lead towards a movement known as Modern Design? Or the area of Design dealing with human experience and knowledge, which throughout time has allowed man to change, adapt and develop his environment to himself? I am convinced that in the present time, anyone who talks or writes about Design, specially for beginners, must make clear what kind of design s/he is talking about, as Ferreira and Bomfim correctly did.

I think that any attempt to put on paper ideas that one have in mind is welcomed. However, Azevedo ideas are so misleading that one can not be sure if he had said what he had in mind to say. I am not convinced about that, when I read paragraphs like the following: "The manufacture of an object, mainly before the turn of the century, was the duty of the craftsman. With his skillful hands, and with the influence of the *design* which passed from father to son, it was up to him to manufacture a unique object. Therefore, the world was full of unique objects like chairs, tables, water vats, that is, objects which were made one by one, where their *designs* reflected the style of each craftsman...with the appearance of industry there was concern over the handling of the activities of the craftsman by the machine...Before the beginning of the mechanised world, man would contribute definitively to the great aesthetic and social revolution which dealt with the forms of the objects that we use in our everyday life."[80] This is a true example how to talk about process which did not belong to our cultural context, not always lead us to a precise reasoning. On the other hand, educationally talking, statements like these are also an indication of how modern Design History has been taught in Brazilian design schools.

And continuing to express about the changes brought by mechanised industry, and making reference to Ruskin and Morris, Azevedo goes on to say things that make no sense at all: "Regarding the object itself it was not enough to be beautiful, it also had to fit a function, designated by the craftsman (the future *designer*). There was interest not only in that the art were by the people, but also for the people. It was necessary that the stages of an object's manufacture were democratic and popular in order to achieve the aim of being socially useful. Drawing finally came to be understood as *design* , that is to say,

[80] Ibidem, p.14.

realised as industrial design."[81]

In the section related to the origin of the applied art, Azevedo goes on to say: "Let us analyse the polishing of the idea of *design*, together with certain movements which came to enrich *design* history. Let us start with Art Nouveau".[82] He then makes reference to Arthur Heygate Mackmurdo (1851-1942) saying: "It is with the artist Arthur H.Mackmurdo that Art Nouveau designs first appear and so let us establish a connection between Mackmurdo's designs with the idea of *design*. In his designs he used wavy shapes excessively, always in black and white contrast...If, at that time, the artist then had the intention of creating an object in that style, then he should adapt the object to fit industrial production. For that, Mackmurdo would have to resort to a *designer*." I would like to say that the Azevedo's ideas quoted in this work is mainly to report one part of the state-of-the-art of Brazilian design thoughts in the eighties, since the other part will be presented on the next section and in ChapterIV. It is worth reminding that one of this work aims is to elaborate a material on which Brazilian design educators could think about what we have said throught almost three decades of design education.

In the chapter concerned '*design* gráfico' in my opinion also is full of misunderstandings ideas like this one: "Logotype: is the design of writing."[83] According to the "Graphics, Design and Printing Terms: an international dictionary", 'logotype' is: "letters or words forming a distinctive whole, often used for a trade name or a brand name; originally the result of fusing two or three character types on a single type body (not necessarily as 'ligature')".[84] And not only that. He says that the Indian symbol for good luck 'swastika', which was used by the Nazi, is a logotype: "Taking for example the logotype of the Nazi..."[85]

In the chapter *Ruptura com o Passado* Azevedo adds on some new names and data about the history of design in Brazil, a fact which I think is the only positive aspect of his book. However, he does not go into the matter in depth. I wonder, when Brazilian design educators will understand that we should let for the Europeans and Americans to write about their own history of design, instead trying to make poor versions, of what has already been written by them. Nevertheless, I think that this part of Azevedo's book is the most important because it

[81] Ibidem, pp.16-7.

[82] Ibidem, p.22.

[83] Ibidem, p.37.

[84] Ken GARLAND, **Graphics, Design and Printing Terms: an international dictionary** (London: Lund Humphries, 1989) p.127.

[85] Wilton AZEVEDO, op.cit., p.40.

can give clues for further researches about the history of design in Brazil.

'One of the first people to develop modern concepts of design in Brazil, creating the first experience with the Brazilian modern *design* , was the Swiss *designer* John Grass(1891-?), who arrived in Brazil in 1920, designing armchairs with steel tubes. The Russian Gregori Warchavchik (1896-) who arrived in Brazil in 1923 and who settled down in São Paulo, beyond furniture, designed table lamps, and modern houses, among several other projects... One of the first modern chairs manufactured in Brazil was designed by the Portuguese painter, sculptor and *designer* Joaquim Tenreiro, who arrived in Brazil in 1928, and who, through his work became one of the outstanding persons of the Brazilian *design.* Tenreiro designed the armchair, known as *Leve*, in which he used prints with African patterns, and the seat a back of that chair were made almost exclusively with straw, a material which is very easy to find in Brazil...With the construction of Brasília, which began in 1957, Oscar Niemeyer made the modern Brazilian *design.*worldwide known. Niemeyer also designed a chair known as *Módulo*, reaching an outstanding standard because it was only supported by a steel shaft.'

Azevedo concludes his book by saying: 'Fashion has institutionalised *design*, is the 1950's decade being redesigned with the new fashion of the eighties, giving up its primary colours to the psychedelic colours of the seventies... *Designers* of the eighties did not find inspiration in the product, but in the consumer... there is a kind of *design* to every single thing...There is nothing more real or false'. Answering the question 'What is Design?' he goes on to say: "Perhaps this question is no longer important to the future, because for man to keep himself alive he will have to seize the imitation which he himself had designed. The importance of that information will only make sense in filling the few gaps which remain...If the discussion about the utilitarian or non-utilitarian object is no longer necessary, it is worth thinking of *design* in the form of *redesign* - the creation of the object through itself...*Design* is always one of the ways of planning a way out".

Having presented Azevedo's ideas about design one can ask: If to explain what is design is no longer necessary, why Azevedo pretended to answer that apparently complicated question? How to think up and to make the Brazilian design education way out with a so confuse and unfruitful thinking and discourse?

In conclusion Azevedo's understanding of the role of Design in the Brazilian society is futile and inadequate. The level of homogeneity in his design terminology is poor. His vision of design did not contribute towards the development of the professional activity or educational

practice of design in Brazil. And he undervalues the Portuguese language when he uses foreign terms instead of the Portuguese terms such as *desenho*, *desenhar*, and *desenhador* to express his ideas about design. However, Azevedo seems to be not alone in this matter, as we will see next.

Brazilian Open Letters on Design

In 1988, eleven years after the publication of Redig's first book, the problems concerned with the terms and nomenclatures towards a Brazilian design terminology still existed; and the number of design schools in the country had increased from sixteen to twenty six, despite the fact that no real improvement in quality has made in the teaching of design at a high level. Nevertheless, it seemed that the awareness of the problems of Brazilian design education was flourishing: a seminar to discuss Brazilian design education was organised to happen from 25th to 29th July 1988. That event did happen, although it had its rather passive name 'seminar' changed to the active one 'workshop'.

The 'Workshop: *O Ensino do Desenho Industrial nos Anos 90*' (Workshop: The teaching of industrial design in the 1990s), was a historical event which brought together at least one representative from each Brazilian design high school. After five days of meetings and discussions the final assembly approved a document called *Carta de Canasvieiras* (Canasvieiras Letter), in homage to the location where the workshop took place.

The Canasvieiras Letter is a document of national importance and scope signed by the 26 Brazilian institutions of design high education aiming at changes of thinking and actions among Brazilian designers and design educators. According to the letter's authors, some of the ways of achieving the intended changes were aligned in 33 recommendations and proposals to provide guidelines for the new direction of design teaching. However an analysis of those items shows that most items are primarily concerned with questions of operational order, rather than educational or philosophical. For instance: proposal for changing the official expressions *Desenho Industrial* , *Desenho de Produto* and *Programação Visual* to the English term Design, and to the half English half Portuguese expressions 'Design *Industrial*' and 'Design *Gráfico*'(item 1); foundation of the first Brazilian Association of Design Education (item 2); ways to promote and support design researches and practice (items 6, 10, 21, 32, 33); assessment and evaluation suggestions (items 7, 14, 15, 20); courses' syllabuses (items 9, 11); ways to spread out classroom achievements (items 16, 18, 30); foundation of Specialisation and Master courses (items 19, 25, 28); teaching ethics (item 23).

Item '1' became the main issue of that meeting and after it. Discussions about Brazilian design nomenclatures did not stop, clearly showing that the debates in that meeting did not entirely fulfil the

expectations of those who participated as representatives of the Brazilian design high schools, and less still of those who were represented. Since then, however, these three proposed nomenclatures - Design, 'Design *Industrial*' and 'Design *Gráfico*' - were used by those who commonly write about design, and were officially recognised as the best terms to identify the professional activity of design in Brazil, as in the case of the designer's professional regulation bill'.[86]

After the Canasvieiras Letter, six other open letters were released extending the discussion about Brazilian design terminology. All those letters form a significant collection of documents about current Brazilian thoughts on Design. They, therefore, deserve and will receive attention in this section starting with the seminal document, the Canasvieiras Letter. That set of letters are not only useful for Brazilian design educators themselves to reflect over their accounts, but also for design educators around the world, who have used foreign terms to express design ideas, to review their own design terminology.

From the 33 items of Canasvieiras Letter I should concentrate on the first since it is directly concerned with the core of this dissertation. Item '1' says:

> "It is intended to substitute for the official term *Desenho Industrial* the word 'design' and for the denominations of the qualifications *desenho de produto* and *projeto de produto*, 'design *industrial*, and for *programação visual* or *comunicação visual* , 'design *gráfico*'."

This change should be addressed at the 5th National Meeting of Industrial Designers, the official forum for debate of Brazilian designers, in order to do the necessary arrangements to modify those terms in the national design curriculum, and in the designers' professional regulation bill.

According to the Letter, the shift of the profession's name aims at correcting a historic error of translation of the term design into *desenho*, so putting an end to the sequence of misunderstandings and ambiguities brought about by the lack of a clear and precise name for the design profession in Brazil. It was sought, with that measure, to avoid the barrier to the establishment of Design in Brazil, which, as the letter's authors put it, was worsened by other classical difficulties e.g. technological dependency. The decision was justified by the following arguments:

> "Today, in contrast to what used to happen 26 years ago, the internationalisation of the term design (which is used in Portugal, the country from which our language

[86] See Appendixes #24 to #28.

originated) as well as the wide usage by the media, has been decisive and has contributed to a better understanding and identification of the profession."

From this paragraph one can perceive how simplistically debates concerning the issues of establishment of Design in Brazil were treated in the Canasvieiras meeting. According to the arguments presented, a mere change in titles is regarded as a fundamental means of promoting Design awareness in the Brazilian society as a whole. A historical cultural colonialism, however, once again is reinforced in the terms of Canasvieiras Letter, whether when the authors resort to the usage of the English name 'design' in Portugal - Brazil's coloniser -, whether when that same foreign name is believed as more powerful than the equivalent vernacular term *desenho*. Up to a point, such a colonised attitude surprises me because Redig, the main mentor of 'Item 1' in the Canasvieiras Letter, was able to spot and criticise the Brazilian cultural colonialism in his books, and urged Brazilian designers to learn about the characteristics of their own country and work aiming at meeting Brazil's needs. Unfortunately, however, the public demonstration of an awareness of what is happening at international level is widely respected in Brazil and the usage of foreign terms usually takes on a cult status.

The Canasvieiras Letter's authors go on to say:

"The use of the denominations Design, *Desenho Industrial*, *Comunicação Visual*, *Desenho de Produto*, *Projeto de Produto* and similar terms, is restricted to the third level of education. Thus, it is hoped to avoid a false qualification to the secondary level, which could cause doubts about the professional qualification required in the practice of those activities."

It is interesting to note that at every possible occasion graduate designers try to avoid that tertiary courses on design are confused with and mistaken by secondary courses on technical drawing. Here it becomes evident the uncertainty of the quality of Brazilian tertiary design courses, and consequently, a lack of confidence on their graduates. Such a crisis of competence seems to cause Canasvieras meeting participants to believe that with the use of the English term Design, the difference between those who graduated and those who have not might be emphasised and any possible misjudgment avoided. In addition, note that in the quotation above, despite the fact that new terms have been chosen to identify the activity, the older ones remain in use. Thus, an activity which had, at least officially, five different Portuguese names (*Desenho Industrial, Desenho de Produto, Projeto de Produto, Comunicação Visual, Programação Visual*), now has eight, if we take into account the three new ones Design, Design *Industrial*, and Design *Gráfico*.

Almost one month after the Canasvieiras meeting occurred, the 5th Brazilian Meeting of Industrial Designers in Curitiba city (PR). There were nearly 400 participants in that professional designers meeting; curiously, 60% were students. The theme of the event was *Caos, a Discussão da Criação* (Chaos, the Discussion of the Creation). Ethel Leon, one of the editors of the *Design&Interiores* magazine published the following comment about the event:

"In the audience there were not only *designers* , but also economists, representatives of consumers' rights, sociologists, engineers, artists, and advertisers. At last, the need of an interdisciplinary knowledge was realised, which would not isolate *designers* from other areas useful to their professional development."

The theme of the meeting suggests that the main issues for discussion should be about the apparently chaotic picture of creativity in post-modern design. However, according to Leon's article the main issues were concerned with (i) the foundation of one more Brazilian design body - the Brazilian Association of Industrial Designers; and (ii) the debate on the design nomenclatures proposed in Canasvieiras. Leon goes on to say:

"Although the proposed names were widely accepted, the final plenum thought it would be more prudent to allow a period of two months before making a final decision about the matter... Any decision would interfere in the teaching, the professional regulations, and also in the professional everyday life... A final decision should be taken on the 5th November 1988, Brazilian Designers' National Day, the date established by professionals in homage to one of the most outstanding Brazilian designers, Aloísio Magalhães."[87]

Two positions were presented at that professional meeting bringing into question positive and negative aspects of the change of the profession's name. One was defended by Joaquim Redig, in favor of three nomenclatures: 'Design' to represent the whole professional area, and 'Design *Industrial*' and 'Design *Gráfico*' to represent the two fields of Design study and practice. The other was advocated by Gustavo A. Bomfim who agrees with the idea of replacing the nomenclature *Desenho Industrial* by the English term Design, but disagrees with the two other nomenclatures. Those positions should be nation-wide broadcasted in the form of a written document in order to be used as source for discussion at local level during the established period of two months. Nevertheless, as usually happens in Brazil, Redig and Bomfim written documents did not arrive on time to be distributed among those

[87] Ethel LEON, *ENDI: Próxima parada São Paulo*, **Design & Interiores** (São Paulo: Projeto Editores Associados, outubro 1988, nº 10) pp.112-3.

concerned with the nomenclature matter. But, even so, the newly formed Brazilian Association of Industrial Designers started its duties addressing a national referendum to redefine the profession's name.

The Association's letter says that up to that moment the Joaquim Redig's document was not received and that Gustavo Bomfim's position does not correspond with the defence of the activity's present name, indeed on the contrary, shows affinities with the change. Having considered that a final decision should be shortly taken and that the issue under discussion was not sufficiently known and understood by the designers community as a whole, the Association found it necessary to introduce the two proposals as an effort towards helping a more thorough understanding of the implications of the change in the profession's name. The process of choosing, then, would be made easier and the quality of the referendum would be ensured. Therefore, the Association tried to summarise in its letter a whole range of contextual matters that should be looked into by the designers before they vote in favour or against the new nomenclatures. The Association also urged the designer's local professional associations to promote discussion and debates among those interested in the matter, in order to highlight the doubts and consolidate positions. The Association's letter is concluded with the following statement:

"It is up to all of us to fight for the best name and to look after the profession, but over all it is up to all of us to be competent professionals independently of the name of the activity which we perform."

Soon after the Association's Letter, G.A.Bomfim presented his arguments about the Brazilian new terminologies in an open letter dated from September 1988.[88] He begins his message by transcribing the two basic arguments used in the Canasvieiras Letter and explains why he partially disagrees with the terms proposed by saying:

"The arguments are convincing. What I am not convinced about are the two adjectives *industrial* and *gráfico* to keep the age-old differences between *desenho de produto* and *programação visual*. Industrial refers to and is concerned with industry. Thus is not design *gráfico* also *industrial*? *Gráfico*, in its turn, is concerned with or belongs to graph, to the art of reproducing by typography, engraving, and similar means. Those who work with graphic (!) arts ... a designer who uses CAD in *Programação Visual* is he a designer *gráfico*? And to which category would belong a designer who works with textiles? (graphic or industrial?). And environmental designer (neither one nor the other). And the fashion *designer*?The Canasvieiras proposal takes a

[88] Dr. Bomfim' s letter " Design ou desenho industrial, eis a questão (Recado de Bodocongó)" was also published with the name *Questão da Linguagem* (A Question of Language), **Design & Interiores** (São Paulo: Projeto Editores Associados, December 1988, nº 11)p.8.

step towards the future when it adopts the term design internationally legitimised..."

It is important to consider the following points before commenting on Bomfim's arguments. It is not known, for certain: why the French and Italian designers and design educators, who, speaking Romance Languages, and belonging to countries with a large tradition in the ground of Art, Craft and Design, use English words to express their design ideas, because, as we saw in Chapter II, they have in their own languages words to create an original design terminology without having necessarily to resort to English. It is not known either why Germans, Russians, and designers and design educators from many other nations have used English terms when, it is known that in their own national language they have, in a way or another, terms and expressions to describe and discuss design matters. On the other hand, it is possible to identify the reason why Brazilian and Portuguese designers and design educators want to use, at any cost English words in their discourse, even having a Romance Language full of terms and expressions which enable them to talk about Design. The reason is the historical political and cultural colonialism. Furthermore, there is no evidence of the occurrence of an international meeting on which the English term Design was chosen, agreed, and legitimised to represent, in all languages of the world, such a field of human experience and knowledge.

Having said that, it is possible to identify where Bomfim's arguments are unfounded. Let us start with the title of his open letter: 'Design or *Desenho Industrial?* That is the question!' I would say that the question, in a clear, intelligible and precise Portuguese, should have been: '*Desenho or Desenho Industrial?*' Where *Desenho* with a capital 'D', like in the English term Design, would be used to define the area of human experience, skill and knowledge that reflects man's concern with the appreciation and adaptation of his surroundings in the light of his material and spiritual needs. In particular, *Desenho* relates to the configuration, composition, meaning, value and purpose of man-made phenomena. And, on the other hand, the expression *Desenho Industrial*, would be used to identify the project and planning activity in which scientific principles, technical information, economic factors and functional aesthetic values are the basis towards mass produced goods. Thus, if Bomfim's question was - *Desenho ou Desenho Industrial*? - he would be showing full understanding of the Portuguese word *desenho*, and, above all, a considerable level of design awareness, towards the development of Brazilian design education as a whole. Both aspects, I am convinced, from which Brazilian design educators are so deprived.

Moreover, his argumentation regarding the inappropriateness of predetermined adjectives, e.g. industrial and graphic, meaning the old concept of two and three dimensions in any design would be correct. As he puts it Brazilian Design would remain in the past with such an idea, and the the two adjectives proposed are no longer enough, neither to specify the 2D and 3D concepts, nor the range of contemporary Design professional activities and educational practices:

"...nowadays, Design has been overcome by more specific qualifications like fashion, textile, furniture, packaging... the use of the adjectives industrial and graphic will continue to cause ambiguities and misunderstandings...A term, whatever it is, defines an activity only formally, because its meaning will always be characterised by the way such an activity is performed."

In other words if Bomfim had considered that *Desenho* is Design he would be totally right when he says, concluding his letter, that Design is a precise enough term to chararcterise an area of human experience and knowledge; and that whatever adjectives is added to the term Design only will serve to indicate what is the particular Design professional activity or educational practice one is talking about.

At this point, the discussion on the issue of nomenclature was polarised between the viewpoints of two influential personalities of the Brazilian design scene. This can be perceived in Redig's following document, which instead of being addressed to the general audience of design professionals, educators and students, is addressed directly to Bomfim, showing, however, an inflexible position in his thoughts, noticeable in the following extract:

"Dear Gustavo, I think that your letter should not be used as an argument in the terminology question, because this is a matter concerned with concepts not with terminology. That is to say the main objective in your text is to challenge the EXISTENCE of two Design CATEGORIES, - Industrial Design and Visual Communication, or 'Design *Industrial*' and 'Design *Gráfico*', or still *Desenho de Produto* and *Programação Visual*, or whatever it is you want call them - and not exactly the APPROPRIATENESS of the TERMINOLOGY proposed in Canasvieiras, concerned with the specifications *industrial* and *gráfico*. Although you contest that terminology, you do not propose any other, arguing that those categories should not exist, and therefore, do not need to have names. The Canasvieiras' Letter assumes that there are two (at least in the national design curriculum) which must be better identified. They exist in the schools, in the job market, in the institutions, in the designers' professional regulation bill, in the titles, in the press, in the literature, in practice, and in theory... The Canasvieiras' Letter did not propose that particular nomenclatures because of their etymological exactness, but for its precision acquired from usage. What I was looking for was to avoid too much explanations. Right or wrong, this is another question which must be approached at world level... However, the main argument in your letter does not refer exactly to nomenclatures, but to the senility of the binary structure [2D and 3D] on which is based the conceptual, professional and

institutional organization of our profession [in Brazil]."[89]

Redig's letter is full of misunderstandings most of them caused by his lack of understanding of the full meanings of the Portuguese word *desenho*; by his crystallised concept that Design activity which regards the 2D and 3D aspects of any industrial product whether for use or show; by his belief that the best terminology to identify such a concept is Visual Communication for 2D, and Industrial Design for 3D.

Before start commenting on Redig's letter let us have first in mind the following points. It is well known that the Bauhaus model of education was so versatile and eclectic that it was favourable towards the development of all kinds of art, therefore great changes and developments were achieved in the fields of art and design education. Furthermore, there is no evidence that the Bauhaus educational model was more favourable to this or to that field of craft, art and design. Actually, it was important to all, although that influence was more visible, initially, in the architecture field. The same is not true for the HfG educational model. There are indication that, for instance, the Ulm educational model, if compared with the Bauhaus, was much more influential generating theory rather than practice, whether basing the approach towards industrial product design, whether developing one of the fields of study in semiotics, the visual communication branch.

The Ulm educational model, despite the fact that it originally aimed to develop architecture and semiotics, arrived in Brazil handicapped, since it only considered the fields of industrial product design and visual communication. And here it is an idea that, probably, took Redig thinking about Design being only industrial product design and visual communication. However, it seems that the arriving of such an handicapped design educational model did not bother at all those who were involved with, and responsible for, Brazilian art, craft and design education. On the contrary, that restrictive concept of education, actually was serving to many universities justify the opening of new courses on the supposed new discovered design vocational areas imported from Ulm, in order to solve their problems of over demand for places in the architecture courses. And this is so true that when in 1977 Redig's published his book conceptualising his dualist vision of design, in Brazil there were already fifteen university courses having in their names the title *Desenho Industrial*, although such a title did not defined at all the kind of education that they were offering.

Thus, Redig's concept of Design presented in 1977, even restrictive, elitists and vocational seemed to be perfectly suitable to base,

[89] Joaquim REDIG, open letter in known as **Bilhete do Vidigal**. Dated 24/09/1988.

at that time, the understanding of the chaotic picture of the professional activity and educational practice of industrial design in Brazil. Besides, for a country in which, after fifteen years of official industrial design high education, no substantial theoretical or practical contribution to the educational model imported had been presented, Redig's effort in conceptualising industrial design had all features to be welcomed. Nevertheless, what seems strange, is the lack of understanding that one of the causes to the failure of design education in Brazil throughout all those years is the maintenance of a radical and biassed position towards Design, and consequently its education.

Redig' discourse on design terminology lacks common sense when he says that the arguments presented by Bomfim cannot be used as a basis towards a Brazilian design terminology, because such a problem is a matter of design concepts rather terminology itself. According to *Aurélio* dictionary 'terminology is the body of terms which identify and delimit the peculiar concepts for any science, profession, art and so on'. So, Bomfim's arguments, despite the fact that he does not consider Portuguese words, is much more reasonable and valuable than Redig's, because it foresee the possibility of other design activities and educational practice.

Redig's second paragraph shows a complete lack of knowledge about the wide scope of Design. Industrial design and graphic design are not, and have never been, the only two categories of Design professional activity and educational practice.To propose a terminology it is necessary to resort to the etymology of the words which will compose the terms of such a terminology. Therefore he is totally fallacious when: (i) he confuses industrial design as being product design, product project; and visual communication as being graphic design, visual programming, not to mention the two other absurd composite terms - half English, half Portuguese - that he himself proposed in Canasvieiras; (ii) he, in discussing new terms towards a terminology, makes use of indifferent sentences e.g. 'whatever the term you want to call', clearly suggesting that design terminology can be idiosyncratic or, in other words, that in Brazil there is no need of an original and precise design terminology.

Redig wrongly says that Bomfim argues that industrial design and graphic design 'does not exist, therefore, they do not need to have name'. Bomfim does not suggest that in any part of his letter. What he actually says is that those adjectives only will continue restricting design education, and the scope of professional activity in Brazil. Redig did not perceive yet that the national design curriculum, and the Brazilian designer' professional regulation bill only refer to industrial design and

graphic design because he himself, in 1977, conceptualised Design in Brazil as being so.

A terminology which has nomenclatures using terms with no etymological exactness is not worth at all. And, therefore, a terminology which is full of idiosyncratic terms instead to avoid ambiguities and misunderstandings, only confuse those interested in learning about the field in question. So,a terminology has to have terms with etymological exactness.

Redig says that that in Brazil, let alone the world, it is necessary to undertake a research to solve the terminology problem of Design. However, Redig seems not to realise that such a wider and complex problem should be first carefully and deeply studied and discussed, before any proposal towards a design terminology to Brazil is made. And, therefore, such a study would only be useful if Brazilian scholars first resort to their own language, and then, understood the full meanings of the Portuguese words *desenho*, *desenhar* and *desenhador*.

The Brazilian Association of Industrial Designers, having already both Bomfim and Redig documents, released another open letter which, curiously, was written by Redig. Therefore it becomes evident that such an important newly born association shares Redig's arguments not only those in favour of the binary division of Design activity, but also agreeing with the three terms proposed in Canasvieiras, and believing that *desenho* is not suitable to express Brazilian Design features whether in professional activity or educational practice. And once again the text of the letter if full of erroneous and misleading ideas, as it is shown in the following paragraph.

> "Assuming OFFICIALLY the denomination Design, we will be **preserving the historical and cultural meaning** of the word [design], and our **professional identity** ...With the new nomenclatures we will be identifying ourselves with the majority of the other countries, Latin or not, where History has darkened the project sense of the word 'desenho', a fact which has not happened in English or Spanish, where '*design* ' and 'diseño' mean project, and so include the sense of OBJECTIVE, and where *drawing* and 'dibujo' mean representational means, which includes only the sense of OBJECT."

What is new in that paragraph is that Redig, instead of arguing on the basis of limitations of the Portuguese language, suggests History as the reason why the word *desenho* had lost its senses of project and planning. But even so, such a statement is one of the most wrong and absurd arguments presented in this set of open letters. This shows that Redig, despite the fact that he says that he before any of his speeches and writings he reads and rereads, I have a feeling that he always forgets to

consult common and specialised dictionaries to understand the meanings of the terms that he commonly uses. And not only that, in the next quotation, Redig's auguments are incorrect too, whether in relation to the French and Italian words, which in fact did not lose their planning and project meanings (actually these meanings are implicit and explicit in both terms *dessin* and *disegno*); whether in relation to the Portuguese word *debuxo* which, as we have seen in Chapter I, is not out of use. Furthermore, he misleads the reader in saying that the international predominance of the English language has been the cause for the adoption of the term Design, and also when he suggests that the Portuguese word *desígnio* is the only correspondent to the English word design. Another point is that Redig persist in the usage of the term programming meaning design, which indeed is not the best one to express what he is saying (as we will see in Chapter V).

"Through the international predominance of the English language the term DESIGN has become adopted world wide to refer our profession, because it keeps the meaning of programming, through its root - incidentally a Latin root, and the same root as the Portuguese word 'desígnio', which also has that meaning. The word 'desenho', however, like the French 'dessin' and the Italian 'disegno' lost that meaning (in Portuguese we have the word 'debuxo', which means drawing or draft, but it is a word no longer used)."

Redig continues his discourse, using as background the same arguments which, as far I am concerned, only serve to convince the people who think that when a patron or client orders an industrial designer to design an industrial product, he does not know exactly how the designer goes about his design. In my opinion this is a totally misleading idea, even if we consider that the patron is totally ignorant about that matter. Actually this is another very different problem which has nothing to do with Brazilian entrepreneurs' lack of understanding about what is the task of an industrial designer. The work of the environmental, product and communication designers in Brazil is usually badly paid because in general these categories have not yet received due acknowledgement regarding their role for the Brazilian individuals, community and society in general. And, indeed, this matter needs more than one research carried out, to identify the real causes of that very serious phenomenon. Nevertheless, Redig seems to have strong convictions about his arguments: 'That mixture set up perhaps our major lack of professional identity, even major than the question of technological imports, which tends to avoid the work of *designers*:

"The 'desenhistas industriais', those responsible for the conception of products,

are often confused with the draughtsmen, who draw the manufacturing plans for industries ...This leads to an often dramatic distortion, when entrepreneur himself, in trying to get the same work done at a cheaper price, engages a 'desenhista industrial' with only a secondary educational background to perform a project, that should really be performed by a *designer* or '*designer* industrial' with university level background."

In the next argument Redig shows that he has not read carefully the Brazilian magazine *Design &Interiores* which had shown several articles related to interior design, lighting design, aeronautical engineering design, furniture design, textile design, pottery design, ceramics design, illustration design, photo design, computer aided graphic design, and many other kinds of designs; and even art design and craft design. Thus, if there only two design categories in Brazil, and only design education at third level, where those Brazilian designers have been trained? Besides he presents another two brand new nomenclatures 'design *de produto*' and 'design *de comunicação*'. However, he once again confuses the whole by one of its parts. That is to say in Redig's thoughts the part Industrial Design can be used to represent the whole Design; and one of the three main Design fields of practice - Product Design - is understood as being one branch of Industrial Design.

"For instance, internationally '*Design* de Produto' is usually identified as A BRANCH of *Design* Industrial, that is to say, the design of the traditional industrial product, those of small size e.g. domestic goods, automobiles, personal objects, etc. While *Design* Industrial ranges, beyond those goods, all kinds of industrial artifacts, including huge equipment, ships, heavy machinery, structures, building components etc...On the other hand it is impossible to think that '*Design* de Comunicação', still part of *Design* , would not necessarily indicate the idea of a visual image, paramount in our work. 'Communication', has many forms. Ours is mainly 'visual' and 'graphic'.[90]

It is worth considering that Joaquim Redig is an individual who has easy access to information and belongs to the elite of the Brazilian Design scene. He was close friend of one of the most important intellectuals of Design in Brazil - Aloísio Magalhães. However, despite the fact that he has inherited from Magalhães the duties of leading Design in Brazil, at least at conceptual level, he seems do not have the same Magalhães versatile and open design mind. But, Redig cannot be blamed for that. Actually, in Brazil Redig has been a hardly challanged authority in the matter of Design concepts, and design terminologies. Indeed Redig has a view of Design professional activity and educational practice as something wide in scope, varied and rich. Regrettably, he has not been able to adopt the same open and responsible view when he

[90] Extracts from the second ANDI-BR's Letter **Revisão da Nomenclatura da Profissão** (Review of the Profession's Nomenclature), writen by Joaquim Redig in October 1988. Five pages.

suggests English terms to compose the design terminology in Brazil.

Bomfim replied Redig's second letter with another open letter with a very suggestive title 'How difficult it is to baptise an adult child'. Following the tone of the letter title, Bomfim's second is ironical tone from beginning to end. And this is another common practice in Brazil: when an individual knows that he is speaking to an audience which does not seem to understand what he is saying, the discourse's tone is changed from serious to ironic. However, it would be of benefit for the discussion process as a whole if Bomfim had used a more clear language instead of a subjective, figurative one. But even ironically, and still without admitting the existence of Portuguese words to compose a design terminology, Bomfim seems to hold more stronger arguments than the second Redig's open letter. And not only can this be perceived in the following passage, but also that a sort of dispute was established between Bomfim and Redig.

"Joaquim Redig, argues that the problem in question is a problem of terminology rather than of concept... I do not have so many pretensions, but actually I do not believe it to be reasonable to separate a name from those things which it denominates. Besides, there are examples enough to prove that a simple change in terminology is not enough to change the context... The process which had determined the name of our profession has historical, economic, and even political reasons, that is, it refers not only to a conceptual problem, but also to process and pragmatic ones... 'Industrial design and visual communication' are historical denominations, addressed to museum catalogues. In their everyday life designers will call themselves according to their particular activity or practice. The task of defining something through a name always involves a dilemma. The more general the term, the more its use and hence less its precision. In contrast, the more its precision, the less its application. In our problem, 'design' is the wider and general term, but, unfortunately not very precise. The design of a child's birthday cake, on the other hand, is very precise, but has little application. The dilemma is to know what is the desired application. When I presented an alternative to the Canasvieiras' proposal, i.e to adopt only the term Design, without the accompaniment of any adjective, I was not thinking traditionally, nor of the present foreign terminology, but of the future, when each 'designer' could self-denominate according to his area of working. Although we want to solve the problem raised in Canasvieiras today, whatever denomination is adopted, its establishment should take time. The new national design curriculum needed ten years to get approval and we lament the birth of an adult child. The designers' professional regulation bill will take even more time to be approved, and we will regret the birth of an elderly child...And the new terminology ? When will it be established? In 5, 10, 15, years from now? And until then there will be American, Russian, Portuguese and Brazilian designers in only *graphic* or *industrial* ?"

Bomfim, at that time, could not predict that the terms 'Design', 'Design *Industrial*' and 'Design *Gráfico*', and also 'designer' would be soon officially adopted in Brazil.

After the publication of the six previous letters discussed in this

Chapter the Professional Association of Industrial Designers from Pernambuco promoted, on 27th October 1988, an open meeting for both professionals and students of design in order to discuss the nomenclature matter. They also did not know that the nomenclatures used in the Brazilian designers' professional regulation bill would be changed without delay in the Brazilian National Congress. So, after that meeting they released the following note:

"Having in mind that we do not consider the discussion on the change of nomenclature enough stressed among professionals and students, we propose to those who may vote in the referendum, vote in white (null), in order to the discussion be carried on, and the Designers' Professional Regulation Bill does not stop its course in the Brazilian National Congress."

That note was accompanied by an open letter, which its twenty signatories[91] decided to name as *Carta do Recife*[92] (Recife Letter) and as they said a document of reflection about the immediate problems of changing the name of the industrial designers profession. And, i would ask what about the design education?

That letter is in fact one of the best of all the previous letters released, whether in terms of presentation, or discussing terminology. It basically says that Redig's terminology proposed in 1977 - that is *Desenho Industrial* and its two fields of professional activity and educational practice known in Brazil as *Projeto de Produto* and *Programação Visual* - was the one used in the new national design curriculum and in the industrial designers' professional regulation bill, thus, such a terminology must not be changed. And this is explained by following statement:

"We are facing professional groups and interests which exceed a lot in number and in power of influence of those who traditionally we have had questions concerned to the limits of our practice ...Some of those professional groups would argue that they have equal and legitimate rights to use the expression based on the understanding that *design*, abroad, is used in a wide scope admitting more specialisations than those presented in the Professional Regulation Bill. That is to say, that not only *design* industrial and *design* gráfico are admitted outside Brazil, but also '*design* de modas, *design* de jóias, *design* de móveis, *design* de informação, *design* de interiores' for instance. What it is not said is that these denominations are established as university courses, many of them at post-graduation level. The Brazilian situation is not the same, where there exists in practice 25 institutions of superior teaching offering the courses 'projeto de produto' and 'programação visual' and only recently one course of '*design* de modas'. We can, in short, affirm that the term Design has already been claimed by

[91] Among the signatories was Bomfim. But, curiously at that APDI-PE's meeting the president of the ANDI-BR whose headquarters are also in Recife, Mr. João Roberto Costa Nascimento, was not present.

[92] **Carta do Recife**, dated from 27th October 1988.

several other professional areas through the years with a major or minor right to its use. The position that we adopt should take into consideration initially whether we intend to restrict the use of the term *design* to the two qualifications considered up to now, whether we should go to extend its other possible future qualifications."

The problem in this passage is the usage of expressions composed by half English and half Portuguese terms. Therefore, where it is written for instance 'design *de modas*' should be written *desenho de modas* (fashion design), and so on. And this mistake makes one to believe that those who signed the *Carta do Recife* did not also understand the full meanings of the Portuguese word *desenho*. Nevertheless, there are other minor misleading points in the *Carta do Recife*. For instance: that some mechanisms must be thought to control the usage of the term Design; and that designers can be only trained in industrial design schools. Nonsense, even considering the historical process of establishment of the Ulm Model of design education in Brazil.

"The intense use, without restriction, of the word *design* through the decades resulted not only in its popularity but also in its inadequate use in areas which bear no relation, not even indirectly, with our profession. *Design* has been used to lend status to the hackneyed trade activities without having affected, until now, our profession. If by fortune we adopt *design* as a term which will designate the profession, the branch of knowledge, and the product of the qualified professional's work, we must clearly restrict its use to control situations foreseen in the professional regulation bill... Thus, this what could we **legally** do with regard to the improper use of the term in trade or professional activities, which was happening in the use of the word *design*? ...We must still consider that *design* has been used freely to define professional activities which are not trained in the schools of Desenho Industrial, those which properly train *designers* ."

As we can note here, they have to acknowldge their restricted understanding of Industrial Design as Design, to Redig's first work *Sobre Desenho Industrial.* And Redig would probably blame David Pye, likewise Gillo Dorfles, Gui Bonsiepe and others, uses the term Design in his books, when actually he should have used the composite term Industrial Design.

The *Carta do Recife* is concluded saying that if, unfortunately, the terms *design* , '*design* industrial' and '*design* gráfico' were accepted by the Brazilian professionals and educators, but were not legally accepted by Brazilian Ministry of Education (national design curriculum) and Brazilian Congress (designers' professional regulation bill), have our efforts discussing such an important matter been worthwhile? I would say that, indeed not!

"Finally, if by chance the denomination *design* is accepted by the majority and its

two qualifications '*design* industrial' and '*design* gráfico', we have still to consider the changes in the Professional Regulation Bill...We must reckon not only with the delay, but also with the possible rejection of a foreign term by deputies and senators. It is not known if another superior profession has ever been approved in Congress with an English word. Furthermore, this change will have to withdraw from the senate the process of regulation and consequently the presentation to the same commissions which have already approved the present proposal."

That reasonable argument seemed not to cause any repercussion at all. The episode of the Brazilian open letters on design terminology was ended in the most regrettable way: the three terms were nationally accepted in the referendum. The names of the Brazilian design courses did not change yet, and therefore students are provided with degrees which do not correspond to the profession's name. In August 1989 the *Projeto de Regulamentação da Profissão do Desenhista Industrial* (industrial designers's professional regulation bill), which was in the due paths at the Brazilian Congress, was replaced by a new one called the *Projeto de Regulamentação Profissional de Designer* (designers' professional regulation bill), with two specific qualifications '*Designer* Industrial' and '*Designer* Gráfico'. However, some lucid Brazilian politicians seem to be against the usage of the foreign term, and have refused to upgrade and recognise a professional activity and an educational practice which has to be identified through foreign and idiosyncratic terms. Ironically, it is suggested that if in Portuguese there is no word to represent the English terms Design and Designer, thus these must have their original morphology changed into Portuguese ones: *Dezaine* and *Dezainer*. And, therefore, a new verb must be created: *dezainar*.

In next Chapter, I shall be dealing with the spoken discourse of some outstanding Brazilian design educators, stressing questions of Brazilian design terminology; origin of design education; national design curriculum; and design language elements.

CHAPTER III

HOW CAN WE PROGRESS IN DESIGN EDUCATION

Brazilian design educators spoken discourse

In the previous chapters I adopted the literature review as the main source to guide my reasoning and introduce the issues which throughout the history of Brazilian design education have excited or enraged the leading design educators in Brazil. In composing the sections of this chapter I made use of the interview technique as the main media to collect the supporting data of my arguments. The aim of using this technique was to collect samples of the present spoken language of Brazilian design school directors, heads of departments, course coordinators, and lecturers, in order to widen the discussion over the two main topics in the previous chapter: the Brazilian design terminology and the national design curriculum.

All the selected interviewees are involved in design education, but they also should fit at least one of the following selection criteria:

(i) to be in charge of the department leadership, courses coordination, or belong to the teaching staff of the project and research areas of the Design Courses at the *Universidade Federal de Pernambuco* -UFPE or;

(ii) to be involved in or even leading the present discussions on Brazilian design terminology;

(iii) to be in charge of the directorship of one of the design school in Rio de Janeiro, because those are the schools which usually initiate changes of attitudes related to design education;

(iv) to be among the leaders of the discussions about Design professional policy in Brazil.

Two months before each interview I made appointments with the selected lecturers, from London, by letter. After confirmation of the interviews, I sent an abstract of my research proposal to the selected

teachers in order to give them an idea of what I wanted to discuss during our meeting. However, for reasons out with my control, some teachers did not receive the abstract. Despite that fact, the interviews were not hindered in their progress or quality because what I was not looking for predetermined samples of spoken language. As a matter of fact I wanted samples of spontaneous and everyday oral language used to express and discuss Brazilian design educational problems.

At the beginning of each interview I introduced a brief report of the academic work that I was carrying out in the Department of Art and Design at the Institute of Education. I tried to show how concerned I am about the implications for design education brought by the new terms for the professional activity suggested in current documents issued in Brazil. This procedure more than just, prepared the environment to start the interview, it also gave a relaxed and informal atmosphere which I so much desired.

The material used to record the meetings was the simplest and cheapest possible: a portable tape recorder; one-hour cassette tape (predetermined time for each interview); sheets of paper and a pencil to write down the main topics of the interview in order to come back to them when opportune. I also kept in front of me a copy of my research proposal and research abstract to guide the formulation of the questions throughout the interviews.

The interviews were completed according to a previously memorised schedule and I tried to keep to the same order of questions in each interview. However, due to the different academic and professional background of each interviewee, there was always little variations in the order, manner and content of each question. The basic questions of the schedule can be summarised as follows:

(i) What is your opinion, in the face of the controversy aroused, of the Canasvieiras Letter proposal for the new nomenclatures to identify and represent Design in Brazil;

(ii) What problems could the new nomenclatures bring to the development of the national design curriculum, in force since 1988, proposed by the Brazilian Ministry of Education;

(iii) To which extent teaching problems, lack of required materials (tools, equipments, machinery etc.) and inadequate physical environment (classrooms, workshops, libraries, lighting etc.) can block or hinder the development of the subjects suggested by the new national design curriculum;

(iv) What is your actual power to alter the Brazilian Ministry of Education determinations, in order to make the contents of the new national design curriculum more suitable according to your schools'

characteristics (teaching staff, students background, facilities etc.);

(v) What are the basic elements of Design Language you consider essential to a design course at high level of education and with vocational aims?

From these questions I created sub-questions according to each interviewee and respective educational institution.

David Crystal says that: "It is not easy to be systematic and objective about language study... Language belongs to everyone; so most people feel they have a right to hold an opinion about it. Arguments can flare easily over minor points of usage as over major policies of linguistic planning and education."[1] Applying this quotation to the specific case of Design it fits in perfectly well, because "at a philosophical level the analogy with language is a good one... the ability to design and the ability to understand design are inherent in all human beings. The argument is that just as with language, so also with design, it is a normal outcome of human intelligence to behave in this way. So long as the child is exposed to language, he or she will be motivated to use and understand it. So long as the child interacts with and changes the environment, he or she will be designing and understanding design."[2] Thus, it is possible to assume that as the interviewees were design educators, and some of them design practitioners, their convictions about Design are reflected in their verbal language.

Hence, I assured the interviewees that I would keep their audience under ethical respect with a view to avoid confrontations of opinions which instead of improving the relationship among them in the future, could cause misunderstandings and disturb their frequent communication. I guaranteed their anonymity by creating an identification code for each document.[3] Two exceptions were made in the particular cases of Bomfim and Redig since they confirmed in their spoken discourse what was already made public in their written works.

Each interviewed lecturer was codified using four figures from the following criteria: the first figure (1 to 2) is related to his or her academic background (postgraduate or graduate); the second one (1 to 2) relates to his or her academic post at the design school in 1989 (directorship or lectureship); the third and fourth figures relate to the

---

[1] David CRYSTAL, op.cit., p.2

[2] Ken BAYNES, *Designerly Play* in Anthony DYSON(Ed.) **Art & Design Education: Heritage and Prospect** (London: Bedford Way Papers, University of London, Institute of Education, 1983) p.64.

[3] To whom it may concern, copies of the extracts of these interviews will be available for further consultation at the Institute of Education Library, University of London, England, and at the *Biblioteca Central*, Universidade Federal de Pernambuco, in Recife, Brazil.

sequence of the meetings. For example, if the interviewee has finished or is finishing his or her postgraduation, is a lecturer, and his or her interview was the seventh, his or her identification code is 1207.

I had planned fifteen interviews all together. Nevertheless, four from the whole group of lecturers contacted did not answer confirming the meeting. I am convinced that their testimonies would be very useful for my data theory chapter.They were:

Murilo de Lima Medeiros, former Coordinator of the UFPE Design Courses and one of the people who is well-informed about the history and problems of these courses;

Wagner Farias da Silva, Coordinator of the Industrial Design Course of Federal University of Maranhão (first Industrial Design course founded in the Brazilian Northeast);

José Abramovitz, Head of Department of the Industrial Design Course at the *Faculdade da Cidade* in Rio de Janeiro, which, according to the*Guia do Estudante 88* [4] (Students' Guide 88'), is the only private school in that State to receive the qualification mark 'good'; and

Prof.Manuel Francisco Ferreira from the Fine Arts School of Rio de Janeiro, who, as we saw in Chapter II, was one of the pioneers in writing on design education in Brazil.

Another personality that I would like to have interviewed, because of all his contributions for the development of Design in Brazil, was Gui Bonsiepe. However, when I organised the field research, he was in the United States.

The methodology used in this Chapter was inspired by Witter's method, adopted to carry out her research *Desenho Industrial: uma Perspectiva Educacional.* With this procedure I aimed to keep a methodological unity with the other research which broached the questions of design education in Brazil. Each cassette tape used to record the interviews was transcribed into written words, from which I selected the data presented in the following sections:

1) A different workshop - where I return to the discussion of nomenclatures used in Brazil to identify the design professional activity and educational practice, but this time resorting to what was said during the interviews;

2) Back to the roots - where I introduce the general Brazilian context when the first design school was founded. I also discuss the reasons why that school adopted in its name the term Industrial Design, and the positive and negative aspects generated since the adoption of the *Hoschule für Gestaltung* model of design education;

3) Modernisation without change - dedicated to the discussion of

[4] Sheila MAZZALORE, **Guia do Estudante 88** (São Paulo: Abril, 1987).

the origin and development of Design as a systematic professional activity and educational practice in the State of Pernambuco; and the current situation of the Design Courses (here it is not included the Architecture Course) available in that State, after the adoption of the new national design curriculum;

4) The other problems of design education - where I present the main problems related to the development of design education, and, consequently the design language, in the design courses which I chose to aply the Design Language structural model as a basis to evaluate their present curriculum: the*Curso de Desenho Industrial* and the *Curso de Comunicação Visual da Universidade Federal de Pernambuco* - UFPE.

A Different Workshop

Two documents were released after the *workshop O Ensino do Desenho Industrial nos Anos 90*. The first one was the Canasvieiras Letter, already examined in the previous chapter. The second was the Joaquim Redig's article *Um encontro histórico*[5] (A historical meeting) published in the Brazilian magazine *Design & Interiores* - D&I.

Nevertheless, when those two documents are compared it becomes apparent, that for example: (i) there is no coordination in the dates of that event; (ii) an important acronym is misprinted; and, (iii) both documents show unnecessary usage of English words which, instead of helping understanding, confuses the issue even more. These three obvious and simple points, in my opinion, indicate that questions of Design Education are still treated without the necessary care and attention by those who are responsible for its development and history.

With reference to the first point, the Canasvieiras Letter says that the meeting took place from 24th to 29th July 1988; while the article *Um Encontro Histórico* records the same event occurring between 25th to 27th July of the same year. In the same article, it is also found the acronym of an important new born institution misprinted: "*...a fundação da Associação Brasileira de Ensino de Design(ABEP)*[sic]..."[6] (the foundation of the Brazilian Association of the Teaching of Design). As we can see, at the end of the abbreviation, instead of a 'D' for Design, there is a 'P'.[7] Recently, the directorship of the *Associação Brasileira de Ensino de Design* discovered that in Viçosa city (MG), there was another professional organization with an identical acronym - ABED, but this time, referred to the *Associação Brasileira de Economistas Domésticos* (Brazilian Association of Home Economics). Then the directorship of the Brazilian association of design teaching published a note in the D&I magazine saying that they had changed the acronym ABED for ABEND, or Abend, or ABEnD,[8] due to this

[5] Joaquim REDIG, *Um encontro histórico*, **Design & Interiores** (São Paulo: Projeto Editores Associados, setembro/outubro de 1988, nº 10) pp.108-111.

[6] Ibidem.

[7] Anyone knows that typing errors frequently occur in published texts. However in the case of the Brazilian official texts on Design, this seems to be a common event. For instance, the final document of the Brazilian Designers' Professional Regulation Bill shows in the Chapter II - "Uso do título profissional", Article Five, Page 3, a misprinted word 'pderá' instead of 'poderá' (could be) and a spelling mistake 'incubir', when actually the word is 'incumbir' (vt. to put somebody in charge of; vi. to be somebody's duty).

[8] ABEnD, form used by the Vice-president, Auresnede P. Stephan in a letter addressed to D&I magazine, nº 20, September, 1990, p. 12.

discovery.[9]

As an example of the third point - the unnecessary usage of English words in documents written in Portuguese - we can take the use of the word 'workshop' to identify that kind of educational meeting. Nowadays English words, like 'workshop', take on cult status among Brazilian designers. However, not only the Collins Dictionary's denotations for 'workshop' but also the evidences recorded in the interviews let it clear that the word workshop was misused to identify the kind of event which took place in Canasvieiras. As The Collins Dictionary says:

> **workshop** n. **1.** a room or building in which manufacturing or other forms of manual work are carried on. **2.** a room in a private dwelling, school, etc., set aside for crafts. **3.** a group of people engaged in study or work on a creative project or subject : *a music workshop.*

Sense **3** might be considered the best to identify that occasion. Nevertheless, as the following extracts show, not even sense **3** fits the Canasvieiras' meeting:

> "... when I arrived in Canasvieiras to participate in that meeting, I was caught by surprise over the discussion about Design's nomenclatures." [10] ;

> "...Besides, Canasvieiras was not a meeting of study..." [11]

> "...everybody who took part had a lack of background to discuss Design History and its relation to Brazilian material culture." [12] ;

> The result from Canasvieiras' meeting was a "mediocre letter." [13] ;

> "...the meeting was not an in-depth study of the best words to identify careers in Design." [14] ;

> "... the nomenclatures did not come from a discussion under philosophical approach... At the Canasvieiras' meeting, the discussion about terminology was the fruit of two people's proposal only."; [15]

One of the interviewees pointed out that it arose in Canasvieiras a general appreciation that the time when nationalism inhibited the adoption of foreign terms had finished. In the 1960s and 1970s

[9] **Design & Interiores** (São Paulo: Projeto Editores Associados, abril de 1989, n.13) p.21.

[10] Interview #2206

[11] Interview #2210

[12] Interview #1107

[13] Interview #2108

[14] Interview #2210

[15] Interview #2211

Brazilian designers were afraid of the English term Design not being accepted to represent a Brazilian professional category because the same had already happened with the English term Marketing which was refused by the Brazilian Congress. According to the same interviewee, expressions like industrial design make no sense today because in a good design course what is important is what is made. To identify design courses by specific design careers e.g. industrial design or graphic design does not leave room for the development of other qualifications.

In Canasvieiras, it seems, the discussion on nomenclature was kindle to stimulate and perhaps unite the participants. However, it was missing the study of cultural, historical, political, economical and educational circumstances - the actual reasons for nomenclatures change. And the interviewee goes on to say that:

"Nevertheless that would be very difficult because all those who were in Canasvieiras lack the background to discuss our history of Design in our philosophical and material culture contexts. Besides, in that kind of discussion, our designers are zero on the left."[16]

This is a relevant statement to my argument that one of the causes of Brazilian design education problems is the absence of a competent challenger for Redig's design concepts and terminology, and for Bomfim's subject-oriented approach for design education. This idea can be expanded in the following statements where, despite the fact that the interviewees think to be important to have an original Portuguese design terminology, they themselves did not do nothing to reinvigorate the project and planing meanings of the word *desenho*. I would say that for Brazilian design educators it is easier to copy rather than to redesign, because redesign or rethink means to plan, project and foresee consequences and avoid the undesirable ones.

"One of the good things at the Canasvieiras meeting was to try to institutionalise what was used only colloquially, in this case the word 'design'. However it is important to have a similar term in the Portuguese language".[17] ;

"After the Canasvieiras meeting a survey was made, through the ANDI's referendum, which indicated that around 80% of the people consulted, agreed with the terminology proposed at Canasvieiras. But not even I am satisfied with those nomenclatures. I am a little frustrated in knowing that the word 'desenho' has lost its meaning of 'design', when we all know that these two words have the same Latin origin and root. We have lost a little of our linguistic and cultural identity. However, the loss of the linguistic potential of the word 'desenho' in relation to its denotations of

[16] Interview #1107

[17] Interview #1102

project and planning is a problem of our history."[18]

I went to talk to Joaquim Redig to learn exactly how the question over the discussion on design nomenclatures started in Canasvieiras. And from his account we can realise how superficial it was. Besides, from Redig's statement it possible to deduce that he himself, afterwards, is in doubt about what he suggested:

"...the discussion of the nomenclature arose because of a group of secondary students who belong to a course called 'Desenho Industrial'. So, from there the discussion of nomenclature was started. How can a technical secondary school be called 'Desenho Industrial', using the same nomenclature as the higher educational level? There is no technical secondary school in Architecture, for example. How could there exist a course of that nature in 'Desenho Industrial'. From that point arose the idea: Why do we not use the term Design to differentiate the third level courses, since 'design' is the word we commonly use? The idea was perfect! Simply because by that way we would assume a nomenclature which already existed. This for me was very simple because to me this already happened in that way, Design in the third level only. Nevertheless, for me there are two reasons for justifying the complements 'industrial' and 'gráfico'. The first is that the training of designers in Brazil was always in those two qualifications. These two professional fields always existed in Brazil. This is so true that the new national curriculum, already published at the time of the Canasvieiras' meeting, was designed for these two qualifications. But I agree that these two productive sectors chosen in Canasvieiras, can be wrong. The idea was not to restrict but rather to open for other productive sectors. The question of nomenclature in Canasvieiras, which I particularly encouraged, was not to discuss if these two adjectives were the best ones. Besides, actually I think this matter should be more deeply studied. We simply tried to find and to adopt a nomenclature which is international. I am not sure that taking that position will restrict or help the development of the Brazilian design courses because for that we have to undertake a work, a specific study, and it would not be in a meeting like the one in Canasvieiras where we will get something in that sense. Besides, Canasvieiras was not a meeting of study. The question of nomenclature arose in order to minimise the problem of the identification of our activity."

In the next explanation it becomes evident how industrial design as a professional activity has interfered, restricted and seriously atrophied the development of Brazilian Design education.

"...Actually what we have seen in Brazil is a desperate effort of the industrial design professionals to ensure an activity, a way of thinking, a concept of an act, a professional concept which results in the terminology discussion as a consequence. From there the nomenclature discussion did not have a philosophical nor terminology origin and this is the confusion which forced the Brazilian designers to find a new nomenclature to help them in the job market. I believe if the industrial design activity was already comfortably established in the job market it could be called whatever the name."[19]

[18] Interview #2210

[19] Interview #2211

It becomes perceptible through testimonies that in Canasvieiras not all participants shared the same opinion about the nomenclatures proposed and about the way design education matters were treated. However, to understand the little power those educators had to interfere in the final result of the meeting, it is necessary to consider the following ideas. The responsibility of recognised masters in an area of human knowledge is, to a certain extent, dangerous because the existence of unchallenged leaders in a certain area of knowledge may cause wrong or inappropriate guidance to a whole social group. Obviously the leaders believe that what it was proposed is right. And in the case of Brazilian design education this seems to be the fact. As we saw in Chapter II the ideas of two people have basically guided the whole field of design professional activity and design educational practice in the country. Therefore the opinions are always polarised, and those who present a third idea have little chance to have it considered because it does not belong either to one pole or to the other. The following statement shows that in Canasvieiras there were some educators holding positions against the proposed change, however their opinions could not prevail because they do not belong to any of the two leading groups.

"...The position adopted at the Canasvieiras meeting to replace the term 'Desenho Industrial' by 'Design Industrial' arguing that this is a historical mistake, is incorrect because ' desenho industrial' is the correct translation of the the English expression 'industrial design'. Desenho has several meanings and one of its denotations is project and planning."[20]

In conclusion, despite the fact that the meeting took place in the workshops of the *Laboratório de Desenvolvimento de Produtos/ Desenho Industrial* - Santa Catarina, LDP/DI-SC,[21] actually it was not a 'workshop'. Thus, the historical event was nothing more than an ordinary meeting of directors, heads, coordinators and lecturers, to introduce the current problems of their design schools, and to detail a letter in order to celebrate their meeting, with thirty three recommendations from which only one (item 1) had repercussions

[20] Interview #1109

[21] Recently the LDP/DI-SC changed its name to **Laboratório Brasileiro de Desenho Industrial-LBDI** (Brazilian Laboratory of Industrial Design) according note published in the Design & Interiores magazine, n.14, Junho de 1989, p.38.

among the Brazilian design educators.[22]

On the one hand the use of the word workshop is inappropriate because those who were present at the Canasvieiras meeting were not, actually, engaged in studying or working on a creative project or subject, according to their own testimonies; on the other hand if the usage of the word workshop is analysed under the light of Portuguese grammar, another unnecessary misusage can be found.

Despite the fact that Portuguese grammar admits both **hybridism** - a word, part of which is derived from one language and part from another (e.g *automóvel, televisão* etc.) - and **foreignism** - usage of a foreign word, sentence, syntax construction - "in general these are condemned by grammarians",[23] especially when the Portuguese language contains words which can be used perfectly with the same meanings as the foreign ones.

With regard to what I have considered the first oversight, those who organised and produced the meeting can disagree on me arguing: "the way you understand things is not the product of the situation that you are in, nor simply a reflection of what you are exposed to. It arises, rather, out of the kind of engagement you have with your situation, on the basis of possibilities you see in it."[24] That is to say, they could advocate, for example, that the meeting would be a workshop, as its title suggested, however for the first time the possibility of placing together a representative of each Brazilian design school arose, and as there was a consensus of opinion that the expression *desenho industrial* in Brazil, after twenty six years of usage, still does not have the same communication power as the term Design, and since "every time when it *desenho industrial* is used, it has to be exhaustively explained"[25] it was opted for changing the meeting's discussion topics to questions of terminology, even if superficially.

However, even if Canasvieiras meeting were a real workshop, there was no excuse for what I consider the second lapse: the Portuguese grammatical mistake of employing an English word when the Portuguese language has terms like **oficina, curso intensivo,**

[22] Note: The Item 2 of the Canasvieiras Letter, which is related to the foundation of the Brazilian Association of Design Teaching, is also a very important issue. However it seems that since its foundation in July 1988 it does not work at all. Please see the Renata Rubin's letter in D&I nº19, julho de 1990, p.10; and Gustavo A.Bomfim's letter in D&I nº17, dezembro de 1989, p. 12.

[23] Celso Ferreira CUNHA,op.cit., p.129.

[24] Phillida SALMON, **Personal Construct Psychology and Education** (Padova: Universitá degli Studi di Padova, Dipartimento di Psicologia dello Suiluppo e della Socializzazione, December, 1986) p.6.

[25] Joaquim REDIG, *Um encontro histórico*, op.cit.,p.108.

seminário, laboratório.[26] That is to say, no one can advocate that Portuguese has no word to express the English meanings of the word workshop, as wrongly was claimed, for more than twenty five years, of the word design.

In addition, that false argument about the word design has been the main cause responsible for producing all the current controversies, misunderstandings, and dozens of serious educational problems for the Brazilian design high courses, unabling those who head and teach in design courses "to revert the process of deterioration which causes suffering to the professional training..., the courses are more and more bureaucratic, empty of ideas, with no reputation, swollen of people, mistaken and motionless - so as not to say boring."[27]

Also in the article *Um encontro histórico* it is documented that "there was a common conceptual basis, implicit rather than explicit, about the nature of design and the need for its training, even on behalf of those people with little experience in the activity. Actually, design and its difficulties, or its identity in the national context, acted as elements of uniting."[28]Nevertheless, one can ask: How is it possible to have a common conceptual basis about the nature of design and design education if there are still doubts and misunderstandings regarding primary things like the usage of words, terms and nomenclatures used to identify design, and guide the pedagogical discourse of those who lead the design education in the country?

As David Pye says, "definitions and terminologies are crucially important. A large part of the fruitfulness of scientific thought has come from one simple fact. It is that hitherto every scientific term has had an exact definition, verbal or mathematical, universally accepted. As a result communication in scientific terms between scientists has till recently been almost completely effective. Yet, on questions of art, communication is seldom half as effective. There is an immense amount of noise and little else. Definitions are the only possible basis for communication and we must have them. If they cannot yet be made final we must have provisional ones".[29] Brazilian professionals and educators have missed a number of opportunities to discuss seriously the problems related to the Design nomenclatures, concepts and definitions to define an original Brazilian design terminology, in order to lessen that 'amount

[26] See, Antônio HOUAISS (Ed.), **Webester's Dicionário Inglês - Português** (Rio de Janeiro: Record, 1982). Appendix #23

[27] Joaquim REDIG, *Um encontro histórico* op.cit., p.108.

[28] Ibidem.

[29] David PYE, **The nature and art of workmanship** (Cambridge: Cambridge University Press, 1968) p.20.

of noise' referred to by Pye.

From those opportunities, I could point out at least four: (i) the foundation of the ESDI (Rio de Janeiro, 1962); (ii) the occasion of the first national meeting of industrial designers (Rio de Janeiro, 1979); (iii) the occasion of the first national meeting of heads of the high schools of industrial design (Rio de Janeiro, 1984); and, (iv) the occurrence of the design educational meeting in Canasvieiras (Florianópolis, 1988). But in fact, as the final documents of these events show, they were not organised to properly discuss Design terms, nomenclatures, concepts, definitions and objectives. Thus, those events were not useful in solving or, at least, in parsing, the future approaches and discussions on design education matters. Why this still happens in Brazil? I should start explaining this from the beginning.

The search for a Portuguese word or expression to represent and identify Design in Brazil is not a new thing. At the beginning of the sixties, "Aloísio Magalhães considered that a Nation's language is also a cultural element. So much so, that he went to talk to Antônio Houaiss[30] about that question. From those talks, Aloísio even suggested that the neologism *Projética* to be used in Portuguese language to mean Design."[31]

This statement highlights that what it was being sought in Brazil was a new Portuguese term which could connote industrial product design and visual communication, as the terms *Design* and*Gestaltung*, in the sixties, immediately connoted. And despite the fact that dictionaries published both in Brazil (like the one edited by Antônio Houaiss himself) or in England, clearly show the similarities between the denotations of the words *desenho* and design, the Portuguese word *desenho* could not be upgraded to a term *Desenho* to represent and identify not only two specific design professional activities and educational practice imported from German, but also the whole area of human experience and knowledge. One of the reasons for this can be expressed in the following idea. Because the area of *Desenho* was so underveloped in the countries where the Portuguese language is spoken, and so associated with artistic drawing, technical drawing and other sorts of mechanical representation - apparently lacking creativity, planning and project - the Portuguese word *desenho* in the mind of

[30] **Antônio HOUAISS**, was a diplomat, and a Professor of Latin, Portuguese and Literature. Since 1971 he has been a member of the Brazilian Academy of Arts. He is author of several essays about Portuguese Language, Linguistics and Textual Critics. He was the translator of "Ulysses" by James Joyce, into Portuguese. In 1982 he finished his monumental work the "Vocabulário Ortográfico da Língua Portuguesa" for the Brazilian Academy of Arts.

[31] Interview #2210

those Brazilian designers from the sixties, could never connote the professional activities and educational practice inspired by the *Hochschule für Gestaltung*. Even *desenho* having the same denotations of design. And this misleading idea seems to be so true that even today there are Brazilian design educators who shows doubts about the denotations of the word *desenho*, as the following testimonies prove:

"... there is nothing in the Portuguese language which can correspond to the English word design."[32] ;

"...the Portuguese word which includes the meanings of the English word design is desígnio." [33] ;

"...to me desenho is what the Spanish call dibujo."[34];

"...I think that we should have, in Portuguese, a term which could express the term design."[35]

However, there are others who know to explain that misunderstanding, and even reaffirm what the dictionaries say about the project and plan meanings of the word *desenho*:

"...the problem is that in Brazil, the word 'desenho' is mainly understood by its denotations regarding graphic representation. That is to say, 'desenho' always brings to mind questions of strokes, lines, dots etc., represented on a flat surface. From there, a certain confusion in thinking arises that a 'Desenho Industrial' course trains people to make technical drawings for industry." [36]

"...It is possible to understand 'desenho' in its sense of 'design' within the more intellectualised social layers of the population [37]... [From there we can have] ... expressions like 'desenhar um plano de governo, um plano social etc.'(to design a government or social plan). But if we ask the Brazilian population what 'desenho' means, 90% will answer that it is the graphic representation of some thing." [38]

"...I am aware that the word 'desenho' has its full understanding as project, for instance in sentences like 'desenhar um país' (designing a country), but for us the twenty years of using the word 'desenho' [as part of the nomenclature 'desenho industrial'] did not work at social and cultural level, that is to say towards the

---

[32] Interview #1201

[33] Interview #2211

[34] Interview #1102

[35] Interview #2105

[36] Interview #1109

[37] This assertion makes one wonder if the Brazilian Industrial Designers are not part of that "high intellectualised population layer".

[38] Interview # 2211

establishment of the activity in Brazil."[39]

As we can see, it seems that, that group of Brazilian design educators know all the denotations of the word *desenho*, and that the problems in choosing a new word to identify and represent Design in Brazil was never related to a lack of correlated Portuguese words.

The actual problem in Brazil was inventing a proper noun (single or composite) which could characterise design as a professional activity and the educational model imported from Ulm, rather than looking for a Portuguese word to represent the "area of human experience, skill and knowledge that reflects man's concern with the appreciation and adaptation of his surroundings in the light of his material and spiritual needs"[40]. If the latter was the case, the Portuguese term, certainly, would have been **Desenho.**

If *Desenho* was chosen to represent the concept of Design referred to above, design education in Brazil would be related to the transmission of the body of ideas, information and technique which constitute the received state of knowledge and skill of the Brazilian population, instead of the mere training of industrial design students. Therefore, design education in Brazil would be concerned primarily with the consciousness of configuration, composition, meaning, value and purpose in man-made phenomena and the ability to understand and handle ideas related with them (Design Awareness); and afterwards, with the development and training of the set of skills by which man adapts things to suit him better (Design Activity).[41]

However, as the term industrial design was adopted to represent Design in Brazil, consequently, the concept of design education intended only to train professionals able to design: (i) signs, symbols, letters etc. understanding the meanings of text composition, shapes and colours and the relation between the images whose function is to communicate and inform visually (Visual Design); (ii) functional objects for mass production, according to economic, ergonomic, aesthetic etc. facts based on the study of industrial techniques of production and materials features (Industrial Design); for the world of press, books, of printed advertisements, and everywhere the printed word appears, whether on a sheet of paper or a bottle (Graphic Design), and; the use of scientific principles, technical information and imagination in the definition of a mechanical structure, machine or system to perform prespecified functions with maximum economy and efficiency (Industrial Design

[39] Interview #2210

[40] Ken BAYNES, **About Design**. (London: Design Council Publications, 1976) p.28.

[41] Ibidem.

Engineering).[42]

Therefore, the systematic education field which has the potential of training a new kind of artist, a creator capable of understanding every kind of need, not because he is a prodigy, but because he knows how to approach human needs according to precise methods (Designer)[43] arrived in Brazil handicapped. First because it was only oriented towards the tertiary level of education; and second because it only aimed to train industrial and graphic designers.

As we saw in Chapter I, the denotations of the word *desenho* presented in ordinary dictionaries are insufficient to cover that wide scope. The same is true for denotations of design in English dictionaries. One has to resort to special dictionaries to find the whole range of design connotations which enrich its denotations.

The partial development of the Design professional activity and educational practice in Brazilian history is the true reason for the impoverishment of the meanings of the word *desenho*, because "linguistic matters go through a historical and cultural process... the problem of losing the linguistic power of the word *desenho*, regarding project and planning, is related to Brazilian history."[44]

Going back to Chapter I, where I presented the evolution of the Latin word *designo*, we can notice that, in the quotations used by the dictionaries to illustrate the linguistic context where a word can be used, the evolution of the meaning of a word is a result of many political, social, cultural, artistic, technical movements, in a certain time and space of human history. The word *desenho*, in its turn, seems to have remained with its project and planning meanings only when related to political, social and economical matters. As the history of both Portugal and Brazil shows, it is in the field of Politics that the problems of these nations are encountered. I should point out that the fragile political, social and economical balance of Brazil is such as to leave no room for the systematic development of their own science, technology, style, art and skill so necessary to help in solving their basic problems of food, housing, health, elementary education.

From there, it is reasonable to understand why the political denotations of the word *desenho* related to plan, aim, contrive, plot, are perfectly understood and used. However, when the fields of craft, art, design, science and technology are concerned, the denotations of the word *desenho* are restricted to a motor activity (drawing) rather than a mind activity (planning and project). This can be justified by the fact

[42] Adapted from Ken BAYNES, About Design, op.cit., p.30.

[43] Walter GROPIUS in 1919, quoted by Ken BAYNES, About Design, op.cit., p.30.

[44] Interview # 2210

that the achievements in craft, art, applied art, science and technology from Brazil are meaningless if compared with the achievements of Germany, for example, the country from where Brazilian design educational model was imported.

Nevertheless, I am convinced that if those responsible for choosing a Portuguese name for the German design education model wanted to reinvigorate, technically and artistically, the project and planning meanings of the word *desenho*, they could have done it. It would have been enough to have written it with a capital 'D' - **Desenho** - as suggested by Prof. Bruce Archer to the term Design. Thus, the title ***Escola Superior de Desenho*** (High School of Design) would be enough to express the kind of *desenho* they were talking about. However, some could argue that this procedure would be in vain because subjects like *Desenho Geométrico* and *Desenho Técnico* were already taught at the secondary level, and the word *desenho* was already written with a capital 'D'. And these subjects do not exactly treat questions of creativity, project and planning for industrial mass production. Once again this argument would not be valid because the adjectives *técnico* and *geométrico* are there, composing those terms, exactly to express what kind of *desenho* one is referring to.

The search for a new word was so true that in the sixties, the candidates for the *Escola Superior de Desenho Industrial*, hereafter represented as ESDI, were asked to suggest a name for the school, in order to replace the term *Desenho Industrial*. "...In that terminology question, I always remember an unusual event which happened in my examination in 1965, three years after the foundation of ESDI...At that time, the school asked the candidates to propose a new name for the profession itself... so insecure they were."[45] An exercise that turned out fruitless, despite the fact that many suggestions were proffered e.g. *projética, dizaine, desígnio, arquitetura-do-produto.*

However, if that was the case the Brazilians could have done as the Indians, who resorted to the Sanskrit to create their own synonymous of Design: *Abhikalpa*, where *abhi* means towards, in the direction of; and *kalpa* means plan, proposal, prescribed rule or method.

If Brazilians had done so, it would have been very justified because in the sixties and early seventies a huge nationalist atmosphere existed in Brazil, they could have resorted to the Brazilian Native Indians

[45] Joaquim REDIG, *Um encontro histórico*, op.cit., p.109.

language*Tupi*,[46] and from it find several words which would describe the activity. For instance:

ECOPOTARAIPOMARA,
ecopotara to aim, to do; to determine, to make;
ipó decisively;
marã thing, object.
MBAECOPORANGA,
mbaé thing, object;
ecoporanga beauty, virtue.
MBAECATUMARA,
mbaé-catu good thing, useful;
marã thing; object.
MONGACUABAMARA,
mongacuaba to create; creation; to inform, make, know
marã thing; object.
MBAEMONHANGARA,
mbaé thing, object;
monhangara author, one who makes things.[47]

There is no doubt that the problem was not simply concerned with the creation of a noun. It would still be missing a verb to identify the man's action over an object, a message, the environment. This would be easy. What it would be a hard task would be the conjugation of that verb using the Portuguese grammatical framework, where all tenses and persons in the verb conjugation change. For instance, how the Tupi-Portuguese verb ***ecopotaraipomarar*** (derived from the noun *ecopotaipomarã*) would be conjugated in the simplest present tense:

eu ecopotaraipomaro	nós ecopotaraipomaramos
tu ecopotaraipomaras	vós ecopotaraipomarais
ele ecopotaraipomara	eles ecopotaraipomaram

It seems that it was not that field in which the problem lay, because as we can see it could be solved. The problem was that a Tupi-Portuguese name would not be identified with the terms used abroad. Hence the import of a professional and educational area of knowledge was followed by the import of its name. To adopt a Tupi or Portuguese

[46] **Tupi** is the general name of the large family which inhabited the Brazilian coastal, in the ephoc of the discovering by the Portuguese; the general language of the large family Tupi, which comprehendes the Old Tupi, spoken by the tribes contact for the first time in the 16th and 17th centuries; The 18th Tupi, and; the Neo Tupi, spoken in Amazonas in the 19th century among the native Indians civilised a, still alive, among the 'caboclos'.

[47] Source: Luiz Caldas TIBIRIÇA´, **Dicionário Tupi-Português** (São Paulo: Traço Editora, 1984).

neologism would be "against our inherent colonial characteristic through which foreign terms are much more absorbed and easily spread in the society."[48] And, therefore, as the possibility of using the word *desenho* was discarded "we opted to use the translation of industrial design."[49] Here, surprisingly, Redig agrees that *desenho industrial* is the correct translation of industrial design.

The adoption of that new composite title *Desenho Industrial*, resulted inappropriate for developing a new imported professional and educational field not because it is confused with technical and mechanical drawing, as it was, and indeed wrongly, argued; but because of the adoption of the name of a specific design activity to represent the whole area of Design. The mistake was not on the use of one of the design careers' name to denominate the whole field of knowledge, but the fact that the schools' peculiarities were not analysed. It would be of benefit for the Brazilian design education as a whole if the following three points were considered and understood:

1) **Design** may be conveniently divided "into three simple categories, though the distinctions are in no way absolute, nor are they always so described: **product design** (things), **environment design** (places) and **communication design** (messages)... in the field of product design the professional extremes might be said to range from studio pottery and textile design at one end of the spectrum to engineering design and computer programming at the other. This is a very broad spectrum and clearly there are serious differences at these extremes. In the communication field a similar spectrum might range from, say, freehand book illustration, to the very exact disciplines of cartography or the design of instrumentation for aircraft... This situation for architects is usually held to be more straight-forward; historically, their position has developed a fairly clear set of responsibilities... it is still reasonable to see an architect as a designer with a specialised technical and functional competence and again a spectrum is discernible, ranging from very open and ephemeral design situations to those as critical as the design of an operating theatre."[50]

2) the three categories Product Design, Environmental Design and Communication Design can be related, run and developed under or within **Art, Craft,Technology**, or even **Communication** faculties or departments, training professionals to practice the wide spectrum of Design careers and qualifications which each of those three categories

[48] Interview # 2211

[49] Joaquim REDIG, *Um encontro histórico*. op. cit., p. 109.

[50] Norman POTTER, **What is a designer: things, places, messages**. (Reading: Hyphen Press, 1980). 1st edition London: Studio Vista, 1969. p.14

involve. For example: **Environmental Design** - Building Decoration, Sculpture, Architecture, Civil Engineering, Urban Planning, Urban Furniture, Landscaping, Interior Design, Exhibition Design etc.; **Communication Design** - Fashion, Textiles, Painting, Illustration, Cartoon, Tapestry, Visual Patterns, Printmaking, Animation, Graphic Design, Advertising, Photography, Urban Signs, Interior Design etc.; **Product Design** - several branches of Engineering Design; Industrial Design Engineering, Industrial Design, Furniture Design, Metal Design, Glass Design, Ceramics and Pottery Design; Fashion Design, Interior Design, Jewellery Design, Industrial Design Management, Transport Design, Exhibition Design, Tapestry, Sculpture, Urban Furniture etc.

3) before founding a tertiary design course to train highly specialised professionals in one of the careers presented above, it would be necessary to ask and answer the following elementary and general questions:

a) What will be the number of students admitted per year per course, and what will be the special requirements for them to enter the course?

b) How will the selection procedure be: regional competitive selection, general culture examination, portfolio, interview, or still the mixture of any of these?

c) What will be the educational approach of our course: artistic, cultural, scientific, technical, marketing, management? That is to say, what will be the definition of our educational orientation: academic, vocational or research?

d) According to the schools' human resources (teaching staff) and material resources (environment of the school classrooms, workshops, laboratories; furnishing, equipments, tools and so on) which subjects can we offer throughout the course. And which of them will be mandatory, recommended or optional, according to the level of the course and the educational aims?

e) Will it be possible for the students to attend courses in other departments in the main educational institution? If yes, it is necessary to specify and keep in contact; and if it is not, in what departments can we base our educational approach to Design?

f) If the course will be vocational, will we be able to develop research and academic studies? How will this value our course?

g) What will be the school's domains of special interest or expertise : product design in general, or one of its qualifications e.g. furniture design; communication design in general, or one of its qualifications e.g. graphic design; environment design in general or one of its qualifications e.g. urban planning?

h) What will be the school's type of curriculum : what will be the percentage of mandatory, recommended , optional disciplines.? what will be the percentage of the student's time throughout the course, that is, what will be the percentage of his/her individual, collective and tutorial work.

i) Will the project work include in the course, real-life projects (collaboration with outside partners), case studies projects, school projects, consultancy or research projects? Will workshop practice be a mandatory part of the course? If yes, which kind of industries could offer this workshop practice?

j) What is the profile of our teaching staff, that is to say what is their professional background: design, industry, teaching? How many are full time, part time and intermittent? Which of them will manage the theoretical disciplines, the professional

practice, and the educational administration?

k) What kind of diploma will the school award? And which will be its recognition level: national, international, professional bodies? [51]

l) What will be the interaction between the school and the community?

If each Brazilian industrial design course or school had at least answered the questions listed in the third point, design education in Brazil probably would not be facing such complex and varied problems.

Thus, some would argue that the trouble was in fact in the word *desenho*. Others would say that the problem is related to the words *produto* or *industrial*. I say that in fact none of these words have any problem. The difficulties arise with the lack of proper understanding of what these words mean. In the case of *desenho* we already saw that that word has the same meanings as *design* and *diseño*. And if those who were fascinated by industry had understood the full denotations of the word *industrial*, not only in relation to heavy industry and fully mechanised industries, then, I am quite convinced that Brazilian Design problems would be fewer.

Industrial is an adjective which means: of, relating to, or derived from industry; any thing employed in industry for example, the industrial work force. Anything relating to or concerned with workers in industry, for example, the industrial condition. And anything used in industry, for example, industrial chemicals.

Industry means an organised economic activity concerned with manufacture, processing of raw materials, or construction. Any branch of commercial enterprise concerned with the output of a specific product, for example, the steel industry. Or still an industrial ownership and management interests collectively, the manufacturing enterprise collectively. And a careful and persevering way in carrying out tasks or duties or something which is carried out with care and perseverance: a diligent work (diligence). And a constant and close application (assiduity).

Industry comes from the Latin *industria*, which means activity, and when the Portuguese dictionaries denote that word they say that industry is concerned with skill and art in the execution of a manual work; it is an aptitude and expertise; the work. In the figurative sense, it can be invention, cunning, and ingenuity. In economics it means the secondary sector which includes any production activity and which together with

[51] Questions formulated based on the **ICSID World Directory of School Offering Design Education.** The new World Directory was presented at the ICSID Congress held in Nagoya, Japan in October 1989.

Note: Copies of that document was sent for all Brazilian Design Schools before the ICISID Congress took place in Japan. During the interviews I asked three directors of schools if they had answered ICSID questionnaire. The answer was: - did not!

the agriculture activity (primary sector) and the services (the third sector), forms the economic basis of any country. Industry is the conjugation of the work and capital to transform raw materials into consumer and production goods. And industry can be divided, for example, into the following categories: (i) heavy or basic industry - which is concerned with the production of heavy machinery and tools; iron and steel industries, chemical industries and industries of the production of electricity; (ii) cultural industry - which is the complex production of cultural goods, which are spread up through the mass communication media and which impose universal ways of behaviour and consumption. That is to say, the mass communication which is running as a marketing and industrial system: mass culture; (iii) light or consumption industry - which is concerned with food production, clothing, domestic goods etc.; (iv) non-chimney industries - the industries of tourism, for example; (v) small industry which is the productive sector which is in between the mechanised industry and crafts industry.

In order to try to find the explanations for the misunderstandings concerned to design education in Brazil one can analyse two points to begin with: (i) the bibliographies of the four Brazilian written works on design presented in Chapter II show lack of knowledge about the role of art and design education, and; (ii) it is necessary to know how the official design education was established in Brazil.

With respect to the first point the bibliography and contents of the mentioned written works, it appears that the authors were not concerned about design education itself but with design history, design concepts and design styles and movements. For instance Ferreira only quotes the first Portuguese version of Pevsner's book 'Pioneers of Modern Design';[52] Redig quotes Pye; [53] Bomfim quotes the Argentinean version of same Pevsner's book,[54] and an article about design education; and Azevedo suggests the reading of the two Pevsner' books[55] reedited in Portugal. Regarding the second point let us learn, in the next section, from those who lived the history of ESDI since the beginning, how the design education officially started in Brazil.

---

[52] Nokolaus PEVSNER, **Pioneiros do Desenho Moderno** (Lisboa: Editora Ulisséia, 1962).

[53] David PYE, **The Nature of Design** (London: Studio Vista, 1964).

[54] Nikolaus PEVSNER, **Pioneros del Diseño Moderno** (Buenos Aires: Editora Infinito, 1977); and Gyorgy KEPES, *Design Education.* In **Education of Vision** (New York: 1965).

[55] Nikolaus PEVSNER, **Os Pioneiros do Desenho Moderno** (Lisboa: Martins Fontes,1980); and **Origens da Arquitetura Moderna e do Design** (Lisboa: Martins Fontes,1981).

Back to the Roots

Whether the question of Brazilian design terminology and nomenclatures is complicated to deal with, the question of Brazilian history of design education is even more: few are the books, reports, articles or essays stressing such a matter. However, I think to be useful towards the understanding of the problem concerning design nomenclatures and terminology to learn about the origin of ESDI. The extracts selected to compose this section, actually represent the first attempt to put together different views about the beginning of design education in Brazil. And to start with, the account of this interviewee serves to illustrated that Brazilian design history needs urgently to be researched and written down.

"Many people think that Design started in Brazil with Max Bill and Tomas Maldonado, but this is not true! The Constructivism Movement in Brazil through artists such as Lygia Clark[56], had already prepared a considerable ground for that activity in Brazil. At that time there was a mixture of science and art and later on there was a symbiosis with the Brazilian movement of Art with the ideas of Max Bill and Tomas Maldonado. However, the Design which arrived in Brazil, coming from Ulm, had avoided all the tendency of the artistic aesthetic. It arrived in Brazil handicapped: an obviously technicist design against the values of art."[57]

The use of the passage 'against the values of art' to criticise the design educational philosophy in Brazil is not usual. Since the foundation of ESDI few were those who took any risk associating art education with design education. In a country where most design professionals pretend to be industrial design engineers, unfortunately, art seems to stay in a low level. However, other accounts show that it was in the artistic environment that everything started.

On 21st February 1990, Pietro Maria Bardi, celebrated his 90th

[56] **Lygia Clark** was born in Brazil in 1920. In 1947 she started to study art under Roberto Burle Marx and in 1950 moved to Paris. Some of her world wide known works are the sculptures **"Animals"** which she started in 1959 and since 1969 have been mass produced. They are made up of basic geometric shapes of the triangle, the circle and the square which are broken into hinged segments. The hinges are stiffened so that when moved the segments hold their position. To be understood the forms have to be manipulated. The spectator becomes involved in a dialogue between possible variations and the limitations imposed by the hinge. The technical and formal simplicity of the "Animals" and their invitation to the spectator to move them about as well as the fact that they are mass-produced all show Lygia Clark's conviction that art should be a common experience. Alastair Grieve, in Veronica SEKULES (Ed.), **The University of East Anglia Collection** (Published by the University of East Anglia, Subsidised by the Arts Council of Great Britain, 1984) p.82.

[57] Interview #1107

birthday. He is an Italian who in 1949 moved to Brazil, and the person chosen by the powerful journalist Assis Chateaubriand to organise the *Museu de Arte de São Paulo*, MASP, the most notable and important collection of art in the Southern Hemisphere. He was a forerunner of Design Education in Brazil, having founded the *Instituto de Arte Contemporânea* (Institute of Contemporary Art), which offered a three year course in design. Chateaubriand said to Bardi: 'I want to make a museum of old and modern art'. And Bardi answered: 'Art is not old or modern. Art is everywhere. Why do we do not simply make a museum of art.'

Soon Bardi thought that one of the greatest advantages of a museum was teaching. And the plans of his wife Lina Bo Bardi for the 1,000 m^2 that Chateaubriand had put at their disposal for the building of a museum, had been planned since the beginning to have an auditorium for lectures and teaching. And Prof. Bardi says: 'And soon I also discovered that in São Paulo, a city of industrial character, nobody talked about design. So, I founded a design school'.

At that time Brazil was passing through a period of euphoria. The fruits from president Getúlio Vargas' policy of industrialization, supported by the substitution of importation, were being gathered. The investment in heavy industry was giving autonomy to Brazilian industrialists to invest in consumer goods before mainly imported from Europe. And after a long period of time Brazilian people faced democracy. Small workshops became mechanised, despite the fact that most of the things were still manufactured based on crafts, and with no quality control.

It was up to Bardi to draw the attention of São Paulo's industrialists towards Design. He goes on to say: 'When I founded the school, it was the intention that they realized the existing teaching of design. I do not mean that I had made a great discovery. In Europe that was a common fact. Here it was necessary to invent everything'. Max Bill was one of the lecturers invited to give classes to a group of twenty five privileged people, almost all of them with grants, who frequented the school of design in the 7 de Abril Street, in São Paulo. But according to Prof.Bardi, Max Bill himself had many problems in explaining things to the students. Among those students were: Ludovico Martins, Maurício Nogueira Lima, Emilie Chamie, Aparício Basílio da Silva, Antonio Maluf, Luiz Hossaka among others. The last would become Prof. Bardi's main adviser, and Hossaka still is at the MASP today.

Hossaka says: 'It was a memorable time of my life. We had classes with individuals like Prof. Bardi, Lina Bo Bardi, Salvador Candia,

Leopold Haar, Flávio Mota, Roberto Sambonet, Osvaldo Artur Bratke, Warchavchik, Lasar Segall; there were seminars on sociology with Roger Bastide, and even on ecology with Prof. Kossinsk, textiles classes with Klara Hartock who had studied at the Bauhaus; wood workshops and classes on engraving and drawing'.

According to Hossaka Prof.Bardi was a master without fear of being overcome by his pupils. Any information which he had, he passed to the students, and he encouraged students in reading foreign magazines. It was a very important course, and best of all, despite the fact that most of the teachers had been directly influenced by Bauhaus, the course was neither restrictive nor orthodox. It was a course with no dogmas attached.[58]

One of the students who attended that course at MASP in the early fifties was the outstanding Brazilian graphic designer Alexandre Wollner. In 1956, Wollner went to Ulm to attend the Hochschule für Gestaltung course. As Wollner says 'the HfG only accepted students who were already professionals. This is illustrated by the fact that the HfG students' average age was around 25 years old, and the course itself seemed a postgraduate course rather than an undergraduate one.'

In Wollner's next words we can see that he does not refer to the courses available at the HfG by their titles, but the professional training of each course. Wollner goes on to say, 'at HfG we had four courses, architecture, journalistic information, industrial design and graphic design. We were trained in those four subjects and could choose one... what I learnt at HfG was that design should be oriented to attend to the community needs and not merely the consumption. We were prepared and trained to participate within the community'.

Between 1956 and 1957 Niomar Sodré, a great supporter of art in Brazil, went to visit the HfG and ordered to Alexandre Wollner and Tomas Maldonado a programme to found a course of Industrial Design in Brazil. In 1961-62 that same lady asked Wollner and Aloísio Magalhães to organise the first course in typography at the *Museu de Arte Moderna do Rio de Janeiro*, MAM. And, as Wollner says, 'that was the embryo of the *Escola Superior de Desenho Industrial*.'

In the late 1950s and early 1960s the Brazilian president Juscelino Kubitschek spoke about industrialization so much that even in hisVolkswagen motorcar factory in Germany they commented about the slogan 'fifty years in five'. That political propaganda and jargon, induced one of Wollner's colleagues from HfG, Karl Heinz Bergmiller,

[58] About the importance of the Pietro Maria Bardi not only for the Brazilian art, but also Brazilian design, please see Ethel LEON, *O Senhor MASP*, **Design & Interiores** (São Paulo: Projeto Editores Associados, fevereiro/março de 1990, nº18) p.65-6.

to come to Brazil in order to be a part of that industrialisation process. But they were deceived. As Wollner puts it, "in Brazil, people make a lot of noise, but nothing ever happens."[59]

The present director of ESDI, Pedro Luiz de Souza, talking about the foundation of ESDI, says: "To innovate high level teaching, in particular the technical teaching, was the reason for the creation of the ESDI in 1962. Since then, it is possible to identify three distinct periods in the school's development: foundation, affirmation, and consolidation. The first is directly related with the end of the Brazilian economical 'developmentist' phase, characteristic of the fifties decade. To think in industrial design, according to the concepts of that time, meant to plan an improvement step where design, and so the concept of the product, must acquire its own, and autonomous form and characteristic of use... Linked to the idea of a qualitative jump, summed up in President Kubitschek's slogan 'fifty... in five', that intention made sense. It was also necessary to notice that what was being realized had objectives analogous with other countries. For the foundation of the ESDI some foreign models were considered, the prevailing one was the Ulm Model, created at a time when Germany, similar to Brazil in the fifties, was looking for a means to constitute a socially-balanced and stable democracy... It was thought for some time that the Ulm Model was adopted without criticism. However, we must consider the criticism and analytical competence of those involved in the process of foundation of the ESDI: Karl Heinz Bergmiller, Alexandre Wollner and Edgar Decurtins, all graduated at HfG, and, mainly, the experience of Aloísio Magalhães, Décio Pignatari, Flávio de Aquino, Goebel Weyne and Zuenir Ventura, among others. The Ulm Model was the best structured, innovator, and adequate model which could be imagined to be applied in Brazil."[60]

An analysis of the last sentence must consider the following issues: (i) if the founders of ESDI had in mind that the Ulm Model was the best one to be applied in Brazil because it aimed to specialise in industrial design and visual communication graduate professionals, Souza's conclusion may be considered plausible; however, (ii) if the founders of ESDI intended that the ESDI Model could be, in the long run, used as a basis to identify the priorities and aims of design education in Brazil,

---

[59] About Wollner accounts please see: Adélia BORGES, *Wollner: três décadas com bem mais que "marquinhas"*, **Design & Interiores** (São Paulo: Projeto Editores Associados, julho/agosto de 1988, nº9) p.86-93.

[60] Pedro Luiz Pereira de SOUZA, *O Preço da Sobrevivência*, **ESDINFORMA** (Rio de Janeiro: Centro de Tecnologia e Ciência/ Universidade do Estado do Rio de Janeiro/ Escola Superior de Desenho Industrial, Ano I, nº1, 1988).

Souza's conclusion turns inaccurate. One of the reasons for that lies in the fact that design education in Brazil was disseminated as a undergraduate course rather than a post-graduate one. Brazilian design undergraduates have no previous design experience at primary and secondary levels of schooling, and the HfG concept of design education and design activity, via ESDI, reached many parts of the country and was adopted without restrictions. Afterwards, art schools became industrial design school, having in their syllabuses disciplines like ergonomics, philosophy, anthropology, sociology, economics, statistics, technology of materials and production processes and so on, without proper laboratories, classrooms or libraries, and lacking qualified teaching staff to relate these subjects with design.

Souza graduated from one of the first ESDI's classes, and he lived the history of that school very closely. In August 1989 we had a meeting when I tried to learn more about the ESDI's foundation as well as to know why the school has the term *Desenho Industrial* in its name. Souza confirmed that ESDI was originated in the Museum of Modern Art, in Rio. However whereas he says that the initial intention was the foundation of a technical school, the *Escola Técnica de Criação* (Technical School of Creation), Bomfim affirms in his dissertation that the same school was to be called High School of Form. The lack of coincidence of the data arises doubt about the origin and nature of design education it was thought to Brazil: secondary, technical, and creative? Or tertiary, theoretical, and elitist?

Where the ESDI's name was concerned, Souza explains that at that time it was not cogitated to put a name to any school using the term Design, although that term already was being frequently used: "All the initial documentation of ESDI, involving its design concepts, were written as 'Design'. However, at the precise moment of making the school's name official there was that difficulty. There was even a discussion among the foundation's group about which name would finally be used. They opted for *Desenho Industrial*, even knowing that such a name was not a hundred per cent suitable for the educational objectives of the school. Besides, at the moment of the creation of the school it was not admitted, even from a legal point of view, to put a foreign name to a public teaching establishment in Brazil. For that reason, and for a long time, a name was sought to properly denominate the school."

From this Souza's statement it is possible to infer that already in 1962 those who imported the Ulm Model, were not convinced, quite rightly, that Design do not regard exclusively industrial design and graphic design. However, Souza says that this was so clear in the mind

of those people who first run the school that the term industrial design was just a name, and it cause no problem at all in the definition of the educational aims of the school. "The term *Desenho Industrial* at ESDI is not restrictive. And I think that in the nomenclature aspect, one will always find restrictions. That is to say, because a profession was baptised with a certain nomenclature, this does not limit it. If the nomenclature restricts the idea of the school to 'industrial design' and 'visual communication', the reason was not by virtue of the school's name. And, in fact, ESDI is not limited to those two qualifications, because from here we have already graduated good photographers, illustrators etc. The limitations which appeared have nothing to do with nomenclature. They were a consequence of the orientation which some people gave to the school's development."

Although I do not agree in full with that Souza account, it serves to illustrate how the first ESDI graduates were biassed in order to protect their small and, to a certain extent, virgin space in the Brazilian job market."I could say that the responsibility for training limitations, lies with the first graduated groups who were excessively pragmatic in certain aspects, and from this perhaps one could take some bridge for further thoughts... At the beginning of the ESDI, the school needed to do much to affirm itself, like everything which is newly started. As the first ESDI's director, Maurício Roberto spoke to the students about the obligation of the school in not failing. The school had a huge responsibility and therefore, it was up to the students to show to public opinion, to the government, and to the consumer that what they were doing was a very serious thing. The results of that, even following the Ulm Model orientation, was that the school's development happened more in the vocational and pragmatic senses....However this is not concerned with those people who have graduated at HfG, on the contrary, it is concerned much more with those people who were trained in Brazil. Actually what I have always said is that the first group who graduated from the ESDI were more radical in relation to the understanding of the Ulm Model than the 'Ulmians' themselves. Bergmiller, Wollner, and Decurtins, were not people who wanted to institutionalise a rigid orientation in the school; that orientation was established at the beginning of the school through a practice which tried, at any cost, to become professionally recognised despite the fact that the three from Ulm always drew attention to the fact that design was not necessarily only a professional practice, a technical-mechanic practice, a solving problem practice. Bergmiller, although he was a follower of Max Bill's ideas, used to use Maldonado's statement that the 'designer is more a creator of problems than a solver of problems'. The name

Desenho Industrial of the school must be kept because it was such that things were established. And I do not believe that this position could affect our wide open orientation. As I also do not believe that changing a name will transform anything; our concept, our social and economic function, and the professional practice itself. And this because I do not believe that the name of a school can make the development of any Design qualification difficult. The ESDI itself, when it was established, opted for a non-specialisation policy, and for a more general training. And a general and flexible training depends much more on the school's directorship and management than the things which are determined in the school's written documents. And this philosophy has enable the ESDI to train photography designers, film designers, cartoon designers, fashion designers and so on. If our nomenclature can be seen as a restrictive thing, the ESDI's directorship never was. The ESDI always was an open school. If one takes the projects of graduation proposed and developed here throughout all those years, they would show the ESDI's spirit, which clearly allows students to developed their careers in whatever the Design professional qualification they want to take (even the schools not having specific disciplines to aid that). If we accept the idea of a minority [which I called in the interview as the marginal design qualifications, like e.g. photography, graphic computer, cartoon, film, interior, glass, ceramics, pottery, fashion, etc.] and give to those activities the value they really deserve, that would be an extremely valid and necessary part of the school's attitude....On the other hand I am aware that if we try to develop philosophical and educational concepts of this, I am saying that, without having properly named the parts, probably we can encounter some difficulties to writing a historical work, starting only from concepts of industrial design. But, concerning the current discussion of nomenclatures I do not see interest at any real level. The people are not discussing the problem of nomenclature with any philosophical or educational objective. It is not from that Canasvieiras' Letter view that the things must be worked out."

Souza goes on to say: For instance, if Rico Lins[61] had found at the ESDI a school where he did not have to necessarily make his own way, as he did, everything could have been easier for him. But fortunately there are people like him who contribute to opening and widening of educational perspectives. I do not think that it is necessary to think of an educational structure which beforehand could attend to all the demands of students qualification in Design. The structure itself is such that it should be widely planned, to attend to each of the students' vocational desires. Therefore, the educational structure must be based on the thinking of flexible people rather than formal documents issued, usually only flexible on the paper. Thus the teachers must assimilate new information and a new professional approach brought by the students and so on."

What I do not agree with Souza is that if ESDI is so open why not to change its name to *Escola Superior de Desenho*, and so its name suggests that the school is open to train any kind of design professional.

When I asked Souza about the Brazilian concept of Design, and its consequences in the planning and establishment of design curriculum in the schools, he gave the follwoing answer: "The concepts of Design in Brazil, has little to do with educational practice itself. These have been guided by the professional associations. And professional associations, in their turn, tend to face design schools with a certain spite. The majority of the people who are involved with the professional associations are not, usually, people involved with the teaching practice. Therefore they throw to teaching a large number of their professional problems. That is the reason why, the new national design curriculum was worked out without the due and necessary care, with regard to the name of the subjects in it. The denominations of these subjects are absurd, ambiguous, and many of them make no sense at all. And worst of all cause a certain confusion. Why? Because they were organised by a large number of people who do not belong to the teaching practice.When the Ministry of Education organises a group to work out a new national

[61] **Rico Lins** is one of the current Brazilian graphic designers and illustrators who has acquired an international reputation. He graduated from the ESDI(1976), and completed his postgraduated course at the University of Paris(1979/84), and at the Royal College of Art in London (1986/1988). In twelve years of professional activity Rico Lins was present at international judge in the Bienal of Illustration of Bratislava (Czechoslovakia, 1983), in the Illustration Award in Cataluña (Barcelona, 1984) and in the Hans Christian Andersen Award (Bologne, 1984/86). He also had his work exhibited at the Bienal of Brno (Czechoslovakia, 1985), Lathi (Finland, 1986), Brazil Design (New York, 1988), and has been published in international magazines like : Creative Review (london, 1988, Print (New York, 1988), Direction (London,1987) Novum Gebrauchsgraphik (Munich, 1986), Design & Interiores (São Paulo,1989), New York Times, Times Magazine, Wall Street Journal, etc. In 1989 he was working at CBS Records in New York.

design curriculum, few are the participants in the selected group who really have experience in organising, teaching or managing a Design course. In contrast, those who are called to give their advice are professionals, members of professional associations who only pass on their own professional problems to the schools, which most of the time are not in a position to try to solve the types of problems suggested by them.This is a serious problem. In my opinion the lack of precision in using a common language to define terminologies in design education, came exactly from here: few are those who belong to the educational area, let alone a school, who have been called to determine that terminology."[62]

I went to ask Bomfim in which aspects he thinks that the ESDI-inspired curriculum failed. I got the following answer which indicates another common problem in the whole system of Brazilian design education: teacher, even those with postgraduation degree in specifics areas of knowledge, who are not oriented to relate subjects like maths, physics, sociology, anthropology etc. to Design practice. "The curriculum of the ESDI did not work because there were no lecturers prepared to cope with it. Beyond that the economic, political, cultural and social differences between the HfG and the ESDI were well distinguished: the ESDI was born under a military dictatorship,whereas HfG experienced a moment in German history of rebuilding and optimism." This paragraph does not coincides with what Souza said in his interview. So, not only that issue regarding the Brazilian context when the Ulm Model was imported needs to be studied, but also others concerned specially with the goal and failures of design education in Brazil.

I also asked Bomfim if the ESDI's name was chosen to drawn the attention of industrialists from Rio de Janeiro. And his answer was: "It is obvious that all the symbols of the countries involved in the II World War which had showed their development stages, were imported to Brazil. And among them there was industrial design. To choose that name for the first school was not a marketing decision. Actually the name was chosen because it was aimed to bring to Brazil a new aesthetic for the industry. Maldonado himself thought that industrialised products should not suffer influence from the artistic aesthetic, but from a new aesthetic: the industrial aesthetic. And his thought was not incidental. During a long period in Germany and in France, Design was related to

[62] Interview with Pedro Luiz de Souza, in August 1989.

PAGE

NUMBERING

AS ORIGINAL

terms such as *industrielle formgebung*[63] and *esthétique industrielle*[64], respectively."[65]

So, it is a matter of fact that Brazilian design education aimed, initially, to be industrial design. Thus ESDI's name was rightly chosen, despite the fact that it nowadays could be changed because the school do not intend to train only industrial designers.

The big mistakes were: (i) to confuse industrial design with Design, and to think that Design regards only two professional activities and educational practices, like other foreign design authors think e.g. Gui Bonsiepe and Gillo Dorfles[66]; (ii) to adopt nation-wide, without questioning, that ESDI initial concept of Design in other school, and; (iii) to have that same restrictive concept as a basis to define a design terminology and to plan the new national design curriculum. Therefore, the changes which eventually happened in the Brazilian design schools' educational objectives, e.g. integration with the local social, economical and cultural reality, syllabuses framework and development were never enough to alter the senile image of design education in Brazil.

And this is the issue that I shall be dealing in the next section: the intentions to modernise design education in Brazil, through the establishment of a subject-oriented design curriculum, without having changed at all the initial concept of Design imported from Ulm, via Rio de Janeiro.

---

[63] **Industrielle Formgebung** in German; **Industrielle Vormgeeving** in Dutch. In the Slav languages that expression is different: in Croak, **Industrijko Oblikovanie**, which is equivalent to the German **Produktgestaltung**; in Czech **Technické Vytvarnictvo**; in Russian **Techniceskaia Estetika**, which corresponds to the French **Esthétique Industrielle**.

[64] According the "Grand Larousse Encyclopédique", Vol.4, pp.714-15, "**Esthétique Industrielle**" is the branch of product design, having as itsobject the study of products devised by an enterprise, submitting them to criteria of adaptability, beauty, facility of production and reduction of cost. And the La Grande Encyclopédie Librairie Larousse(1973) Vol.8, p.4563. "esthétique industrielle" is the same as "design" (Vol.6, p.3785) : "Term anglais servant à désigner une discipline qui a pour object la refonte rationnelle de l'environment, depuis la conception de l'objet industriel jusqu'à celle du complexe urbain". "Esthétique industrille" also is regarded to "styling".

[65] Interview with Gustavo A.Bomfim in July 1989.

[66] This approach is endorsed by Gillo DORFLES, **Introdução ao Desenho Industrial: Linguagem e História da Produção em Série** (Lisboa: Edições 70, 1990) pp.130-1. (Original Title: Introduzione al Disegno Industriale (Bologna: Capelli Editore,1963; and Torino: Giulio Einaudi Editore, 1972).

Modernisation without change

Those who want to understand part of the history of Pernambuco, from the industrial, economical and sociological view, have to read Peter Eisenberg's book[67] *Modernização sem Mudança* (Modernisation without change). This book beyond giving details of the relationship among the 'sugar oligarchy families' in Pernambuco, gives details and clues of questions of technological development in that State. The book's main issue is that despite the fact that sugar industries brought economical development and technological modernisation for Pernambuco, the State did not have substantial changes in its social and political structure from such an economical initiatives. Because of that, I frequently make analogies between the title of that book and the history of design education in Brazil, in particular the way curriculum matters are treated.

According to Bomfim the Bauhaus influence over the Hochschule für Gestaltung is evident only in the first HfG curriculum. "That plan, dated from 1953, was elaborated by Max Bill, Olt Aicher, Hans Gugelot, Friedrich Gildewart and Walter Zeischerg. It was organised in four phases : classes; lectures, exercises, and language courses. It only lasted three years, being substituted in 1958 by another one which divided the previous HfG course into four distinct courses: *Produktform, Bauen, Visuelle Kommunikation,* and *Information* (Product Design, Building, Visual Communication and Information)".[68] In 1962, ESDI plans its curriculum slightly revamped from the original HfG *Produktform* syllabus.

In 1968 the ESDI educational framework showed the first signs of a crisis. The philosophy imported from Ulm did not fit Brazilian conditions, and the chances of adaptation were overcome by the inappropriateness of ESDI curriculum: the syllabus framework seemed unsuitable. The school had not yet got governmental recognition, and the ESDI students and lecturers suspended that classes and in a self-criticism attitude, ceased. As Bomfim put it, "as a result of several meetings, they decided to establish a new curriculum according to the economical and technological conditions of Brazilian industry". However, from that statement there is no evidence that they were worried with the Brazilian educational context of that time. Besides, it seems that the students which were trying to enter at ESDI, were not no longer professionals. They were common secondary students with no

[67] Peter EISENBERG, **Moderinização sem Mudança: a Indústria açucareira em Pernambuco,1840-1910** (Rio de Janeiro: Paz e Terra, 1977).

[68] Gustavo Amarante BOMFIM, Desenho Industrial: Proposta ..., op.cit., p.45.

kind of previous design education. Therefore, another aspect should have been considered: the lack of design education in primary and secondary Brazilian schools.

Bomfim also said that in 1968, it was already very clear that the industrial sector was not so anxious, as it had seemed, in rent the skills of that new graduated professional. And he adds that "the gloomy data from a survey recommended by the ESDI's directorship showed that, of ten people able to practice the profession, only three earned their living from industrial design, proving that in Brazil there was neither industrial design, nor visual communication."[69]

At that time there was already running in Brazil a design course at the School of Fine Art in Belo Horizonte (MG), and the *Faculdade de Arquitetura e Urbanismo da Universidade de São Paulo* - FAU/USP, offered to their architecture students a discipline called *Desenho Industrial*. However, according to Bomfim these two initiatives had little expression in the field of the industrial design itself. He also said that 'the big boom in industrial design courses in the country, only happened during the first half of the seventies'. And, from the names adopted by those thirteen new courses, as well as by their syllabus framework, it is clear that none of them took into consideration the ESDI previous educational experiences nor the data resulting from the survey carried out there, nor the lack of design education in the basic levels of schooling. The new courses just imitated, without any sort of criticism the 'ESDI Model' to plan their curricula. But there are some explanations for this.

"In the beginning of the activities of many industrial design schools, a very interesting fact is revealed. The concentration of courses founded between 1971 and 1975 coincided with the so-called 'Brazilian miracle', which prophesied an economical and industrial development many times superior to the reality. On the other hand that period also corresponds to the change in the education policy, which attributed major importance to science and technology to the detriment of the humanities. This explains, therefore, the meteoric transformation of art courses into industrial design courses, denoting that the birth of these new schools reflects much more a strategic change rather than the fulfilment of a real need."[70] In this Bomfim's passage we can find just one of the reasonable explanations. There many other particular aspects which those art courses, actually tried to become industrial design course e.g. overcrowded universities, excessive demanded for architecture courses, government educational policy, let alone, the

[69] Ibidem, p.34.

[70] Ibidem, p.40.

cultural context and history of each region in which those new industrial design courses were opened.

The particular case of the foundation of the Industrial Design Course at the Federal University of Pernambuco will be stressed here because this will be the course that I shall apply the design language structural model, as a basis to evaluate its present design curriculum, in the Chapter V.

Aloísio Magalhães was born in Recife in 1927 and died in Padua, Italy, in 1982, at a very important moment in his life when he was being appointed as the President for all the Latin American Countries Ministry of Culture. He had his humanistic background forged at the *Escola de Direito do Recife* (Recife Law School), one of the first institutions of that kind established in Brazil. Most of his life was spent among artists and intellectuals who, in Pernambuco during the 1940s and 1950s, built up part of the cultural history of that State.

According to Redig - who worked with and was a close friend of Aloísio Magalhães, and who, in 1989 lent to the Brazilian magazine D&I part of his writings about Aloísio's artistic, design and intellectual life[71] - Aloísio always had a strong and intrinsic artistic vision. In the 1950s he moved to Paris to carry on his artistic studies. At that time he was able to participate in several exhibitions in Brazil, the United States and Europe. Constantly aware of the importance of the technical context for any culture, the multiplicity of man's creative manifestations, and the exuberance of Brazilian culture, Magalhães always tried to overflow his personal vision in different contexts.

In that same decade, he founded, with a group of artists, poets and intellectuals from Recife, the studio *O Gráfico Amador* (The Amateur Graphic Designer) initiative which can be considered as one of the first movement towards a systematic Design professional activity and educational practice in Pernambuco. The philosophy of that group was oriented towards the experimentation in the field of graphic design. And, it was in that studio that Magalhães published, among other works, the book *Improvisação Gráfica* (Graphic Improvisation), where he started experiencing the relationship between form and communication. However, in Redig's accounts it is possible to identify how versatile is the work of a designer: 'Magalhães was not only lawyer and graphic designer. He was also painter, set and costume designer, and above all a great activist defending the popular cultural manifestations of his State, Region, Country and, later on, the Latin American Continent. Surprisingly Redig himself does not seem to have that same concept of Design when he says that Design can be summarised in the activities of

[71] *'O mestre Aloísio Magalhães'* **Design & Interiores** (jan/ fev 1989, nº12) p.102-7.

industrial and graphic designers.

Redig goes on to say that in 1958, Aloísio made a speech in Recife, in which he made reference to the Bauhaus innovative proposals which should be considered as an example to follow: 'Firstly, it is necessary to abolish all the differences of value between the many types of artistic expression, and that hated classification of major and minor arts. All kinds of expression are valid when made using technical skills and sincerity as part of the objectives.' I would say that the same could be considered regarding Design professional activity and educational practice in Brazil. It is necessary to abolish the senile differences of value between the 'major designs' and 'minor designs'. Differences which were not considered in the beginning of design education in Pernambuco.

The first generation of designers from Pernambuco were schooled in the *Mini-Gráfica* founded by Gastão de Holanda and Cecília Jucá, also contemporaries of Aloísio. That graphic design studio run in Recife, until 1971 when these two forerunners of modern graphic design in Pernambuco moved to Rio de Janeiro. Nevertheless, in that same year, two former apprentices of the Mini-Gráfica, founded another graphic design studio: the *Multi Programação Visual.* This design office resulted from the society formed by João Roberto C. Nascimento and Neide Câmara, both graduated in architecture from the UFPE, but very interested in modern industrial and graphic design.[72] And, as the issue No.19 of the magazine D&I, dedicated to the Brazilian Design, only makes reference to the work developed in that Pernambuco studio, one can assume that the Multi was the pioneer design office upgrading graphic design and, eventually, industrial design, as one highly professional practice towards the development of the State and NE region.

In 1973, a great event took place in Recife: the first international seminar in modern design. That seminar was one of the events responsible for increasing the movement towards the establishment of the two other fields of Design, which were not yet systematised in Pernambuco: the product design and the communication design. One year before that seminar, in march 1972, the first industrial design and visual communication higher courses were founded at the UFPE. However from based on the above history accounts there was no

[72] Translated and adapted from João Roberto C. NASCIMENTO's speech addresed in the overture of the Forth National Industrial Designers' Meeting, in 1985, which took place in Belo Horizonte, capital city of the Minas Gerais State, and published in the Final Report. "**Anais do IV Encontro Nacional de Desenhistas Industriais**". (Brasília: CNPq/Coordenação Editorial & Associação Profissional de Desenhistas Industriais de Minas Gerais -APDI/MG, 1986) pp.6-8.

evidence at all to create an industrial design course. Thus, the influence of HfG, via ESDI, even in the names of the UFPE courses were already seen.

Though there has been no detailed research into the real reasons behind the creation of those courses, one official source says that it may be "one more alternative for the people demanding to carry on their studies at a higher level".[73] As a matter of fact, UFPE courses had been created during a political and economical period in Brazilian contemporary history (1964-1975) characterised by an enormous demanding of mass produced goods, which initially were imported, and at that time were available by internal production. A period of Brazilian history which faced a policy for the development of the country in which, due to its democratic ideology, aroused further the educational desires within the population. Thus, every Brazilian citizen aimed the university as the means to get better salaries and jobs. The consequence was a succession of crises within Brazilian universities right up to present day. And he increasing demand for studies at a higher level caused, as Freitag put it 'the degradation of the quality of higher education... and therefore, the bad training of future professionals'.[74] In addition, as in the late sixties Brazilian the students' political movements were, for obvious reasons, based in the communist ideology, the government's interests were clearly to make all the Brazilian universities part of its ideological apparatus "for the reorganisation of the means for social and political control",[75] rather than have Brazilian universities as centres for the education and training of human resources suitable towards the develop the country.

In 1975 the UFPE Industrial Design and Visual Communication were transferred to the Art and Communication Centre building, to join other courses also running there: Architecture, Fine Art, Arts, Librarianship, Social Communication amongs others.

Considering the UFPE industrial design and visual communication courses educational and teaching objectives, four distinct periods, can be classified: The Period of Implantation (1972-1975); The Period of Identification (1976-1980); The Period of Personification (1981-1982) and ; The Period of the First Revolution (1983-1988). For the purposes of this section what is relevant is one of the events which happened in the period concerned with the First Revolution: the introduction in the

[73] Geraldina Porto WITTER, op.cit., p.115.

[74] About this matter please seeBárbara FREITAG, **Escola, Estado e Sociedade** (São Paulo: Moraes, 1986) p.73 and pp.87-9.

[75] Fernando H. CARDOSO et alii, **Dependência y Desarrolo en America Latina**. (Mexico: Siglo Veintiuno Editores, 1971) p.149.

second semester of 1988, of the new national design curriculum proposed by the Ministry of Education.

Having said that, let us take this concept of 'curriculum' from Denis Lawton, former director of the Institute of Education, University of London.

"... Curriculum (in the wider sense) is **essentially a selection from the culture of a society**. Certain aspects of our way of life, certain aspects of knowledge, certain attitudes and values are regarded as so important that their transmission to the next generation is not left to chance in our society but is entrusted to specially-trained professionals (teachers) in elaborate and expensive institutions (schools). Not everything in a culture is regarded as of such importance, and in any case, time is limited, so **selection** has to be made. Different schools may make different kinds of selection from the culture: teachers may have different list of priorities, but all teachers and all schools make selections of some kind from the culture. I propose to use the term curriculum to cover such selections from the culture made by schools. The way in which they decide on priorities and put these priorities into practice, I would describe as curriculum planning."[76]

To try applying that quotation to what happened with the planning of UFPE design courses curriculum, in the light of the Pernambuco educational context and cultural reality, is totally incompatible.

As we have already seen, ESDI had its first curriculum slightly revamped from the original HfG *Produktform* curriculum, and developed a syllabus which would give background not only to industrial designers, but also illustrators, cartoonists, film producers, fashion designers, and mainly graphic designers. This clearly shows some misunderstanding of the role of a curriculum in a school. That is to say they used the *Produktform* curriculum, mainly based on the Maldonado's ideas - scientific, specialised, and restrictive - to put in a document; and developed a 'hidden curriculum'[77] based on the ideas of Max Bill (and consequently Bauhaus) - artistic, wide open and versatile.

As Richard Lewinshon [78] said "in Brazil nobody is worried about verifying the origin of the data from which they quote - before

---

[76] Denis LAWTON, **Class, Culture and Curriculum** (London: Routledge & Kegan Paul, 1975) p.6.

[77] As Prof. Denis LAWTON, "some educationists have also been driven to invent the term "the hidden curriculum" to convey the idea that some school activities... are very powerful and influential but would not appear on the timetable as currciulum". Denis LAWTON, **Class Culture and the Curriculum**, op.cit., p.3.

[78] Richard Lewinshon, born in Vienna, Austria, and emigrated to Brazil in 1940. He was the first in Brazil to make reasonable estimates about the Brazilian national income, using as basic source the tax over sales and consignation earnings. In 1947 he was the director of the Brazilian economics magazine " Conjuntura Econômica" published by the "Fundação Getúlio Vargas".

referring to more obvious sources, they are already giving opinions."[79] Despite the fact that this quotation is mainly addressed, quite correctly, to the Brazilian economists, it also fits perfectly well to the Brazilian designers who are involved in determining design nomenclatures and planning the new design curriculum.

I went to talk to Bomfim to learn more about the new curriculum. Bomfim said: "The new curriculum, was a curriculum widely discussed. The schools which wanted to participate, participated! And the curriculum commission was very patient because we had to delay our data analysis, and sometimes change some sections already done because the schools did not send their information on time. However a negative aspect of the new curriculum is that it was elaborated initially in 1978 and approved in 1987. Therefore it was born already old. However, we can not say that it was the Ministry of Education's fault, nor was it the fault of those who were involved in its planning. Because, even so, the new curriculum is still more flexible if compared with the old one, mainly with regard to the adaptation of the trends of qualification in each school...The new curriculum opens two fields more clearly. Aiming the qualification not at two or three dimensional patterns... but to areas of specialization whether at object or message levels, as well as at aesthetic, semantics, ergonomics etc. We believed that acting so, the term 'design' would pass through the new changes, and the students could choose the areas of their interest, making their course be recognised by its good training in a specific training qualification."

Nevertheless, if we observe the official document of the national design curriculum (Appendixes #31 to #41) we will find *Desenho Industrial* and its two qualifications *Projeto de Produto* and *Programação Visual.* And this common nomenclature problem, was not only in respect of the denomination of the educational areas to which the new curriculum was proposed to be established: there were also problems related to the names of the curriculum's subjects and the way it was planned.

"When the new curriculum began to be discussed... we faced it in the following way: do not accept what the Ministry of Education suggested without prior discussion. And so, to take advantage of that new situation, we interpreted, reviewed and organised the present national curriculum. And as a result what happened in our course was completely different to what happened in others of the same nature, because we did not accept the new subjects' nomenclatures without discussion."[80]

"We need to have a course with a more philosophical and historical approach.

[79] Qouted by Celso FURTADO, **A Fantasia Organizada**. (Rio de Janeiro: Paz e Terra, 1986) p.47

[80] Interview #1102

Visual methodology is one of the nomenclatures suggested by the new curriculum which I understood as the basic means to represent graphically the elements of visual language... but I do not use these principles in relation to two or three dimensions; that is a definition of the 19th century."[81]

Bomfim says that the new curriculum is more open and flexible to adapt and develop new trends in design careers. I disagree with this statement because such a flexibility is not clearly indicated in the curriculum official document and therefore schools may not understand it in that way. Such an omission may be fault of those who wrote the final curriculum document because in it there it is not explicit, for instance, that 'from now on any school can train designers in whatever the field of design they want'. And this is so true that in the next testimony, it is evident that the Brazilian preestablished Design professional activity and educational practice is so rigid that those responsible for the discussion on the new curriculum were unable to foresee any better or more realistic kind of design training for their regions:

"In our school the differences between the two courses is a consequence of too much tension and misunderstanding about Design. And there is a very strong political component in that situation. The group which belongs to the field of Visual Communication, consider that their qualification is more important, and with a more mature reality and function in the job market. And that group does not deserve to be part of Industrial Design. This has made the development of Industrial Design course difficult and had placed it in a serious risk for the establishment of the new curriculum... From my point of view to change a curriculum does not mean anything if that change does not come accompanied by a recycling and a change in the behaviour of all teaching staff. To change the names of subjects, disciplines, to create new disciplines or increase their number, without modifying the educational reality, does not represent anything at all. This is a mistake in the Brazilian universities: the introduction of new curriculum without due preparation of the school for such changes. Only a new philosophical proposal would change the attitudes towards that new curriculum. All the teachers should be aware of and work towards the creation of that proposal because if this is not done the course will remain the same for a long time to come: teachers teaching based on their old patter and without unity. It is necessary to recycle the teaching staff and prepare them to teach the new disciplines. I think that the students must participate in the elaboration of this new philosophy and of the new educational policy. They have knowledge of the situation."[82]

I agree in full with the sentence 'only a new philosophical proposal would change the attitudes towards the new curriculum'. On the other hand I am not quite sure about the last sentence. There are evidences that those involved with design education in Brazil, have knowledge and are interested in their own situation and their own views of design.

[81] Interview #1204

[82] Interview #1103

Therefore, few are the Brazilian statements on design education in which one could find that the potentialities and abilities of design students must come first ever.

As I know that: (i) everything related to design in Brazil which come from the Bonsiepe, Redig, and Bomfim discourses are, commonly, accepted without questioning; (ii) the so called new curriculum has its roots in Bomfim's MSc thesis, and I do not agree with that curriculum, starting from its terminology, I went to talk with those who lead the schools and the departments involved in the introduction of the new design curriculum, to learn if they have autonomy to question the Ministry of Education decisions. As a result I had very important accounts towards the understanding of the complexity of design education problems in Brazil:

"The heads of departments do not have any power to block, argue etc., the Ministry of Education's recommendations. The lack of physical environment, material, and human resources for the fulfilment and development of the new curriculum is the fault of the group who worked in MEC towards the elaboration of the design curriculum. I have said that when a new curriculum is recommended, together with it must come recommendations about how to build, redecorate etc. new classrooms, workshops, laboratories, teaching resources, and indications on how to train and update lecturers. Because only thus will the schools and their departments have the necessary conditions to put pressure on the University Vice-chancellor, demanding financial resources to make the due improvements. For instance the discipline of Ergonomics suggested in the new curriculum is presented without any reference of how to get an ergonomic lab established. So if we just go to the Senate House and ask for resources to build that lab they will say: - 'I am sorry, but the university has no budget at all to do that'. I am quite convinced that things like that should have been foreseen by the group which designed curricula." [83]

Modernisation without change is clearly evident in the following testimonies:

"There are already criticisms of the new curriculum, but we must not assume that we have the correct idea about it. What we know is that a industrial design course needs a good basis in drawing and a strong knowledge of the local social and economic reality. Despite the fact that we are not able to cope with some subjects suggested in the new curriculum, nor do we have teachers able to develop the new disciplines in terms of professional practice, we can resort to other university departments asking their specialised teachers to teach these new disciplines... The problem of the new curriculum is related with those disciplines which require specific workshops and labs e.g. Ergonomics and Computer Aided Design, in the sense that, the university, or the department has no resources to build them. In the case of updating lecturers the university does have some agreements with other universities abroad. However we do not have the knowledge or indeed any agreement with international institutions to improve the material conditions of our course." [84]

[83] Interview #1103

[84] Interview #2105

"Whatever the curriculum is, its success can not be achieved if there is not a common thought about it. In the new curriculum the fact that it has project disciplines throughout the whole course is a very positive aspect. It has reduced significantly the disciplines concerned with operational drawing. And the disciplines of history were improved because now they deal with modern and contemporary history."[85]

Whereas some people find improvements in the new curriculum (for example it specifies what kind of History must be taught and suggests that the Project disciplines are spread throughout the course); other people disagree and have serious criticisms with regard to the quantity of subjects presented in the new curriculum.

"The main problem in the new curriculum is its 'concerting'. That is to say there are many subjects completely unnecessary and which are diversified only by their nomenclatures. In fact such subjects could be condensed into only one discipline and let the university keep or diversify the subjects in the way and interest of the course. For instance, there is a tendency in Brazil that the designer must have social awareness. Then they fill the syllabus with a lot of disciplines related to sociology, sometimes in four consecutive semesters. Then you realise that if those disciplines were well taught, they would be training a good sociologist. But on contrary, the students left the course completely ignorant in that matter. And this also happens with other subjects like Maths, Physics and so on recommended by the new curriculum. I am convinced that if we take out Maths etc., from the design curriculum, designers from all Brazilian schools would have the same background and the same qualification to act professionally, as they have in the present. Therefore, it is necessary to start a discussion to analyse the content and quantity of the subjects in the new curriculum and confront it with the reality. To clean up that curriculum for each school choose and conceive what design is to it... and it is important to remember that a design course is not a polytechnic course, as is some people's intentions."[86]

And the criticisms are not only met in the quantity and the way subjects are presented in the new curriculum; but also in the way the Ministry of Education selects the people to compose the groups to study and propose modifications in the Brazilian design education system.

"When a group is organised by the Ministry of Education (MEC) to plan a new national curriculum few of the people taking part in that group, have some practical and management experience in organising a school of design. This is not the MEC's fault. The MEC is only wrong at the moment it chooses the people to discuss educational matters . So, MEC puts trust in what those people say and propose, regardless their experience and their awareness about design education. And even some educators present in those groups are the best selected or more experienced. And in this aspect MEC also fails. MEC starts from the point that the groups must be composed by people from all the geographical regions of the country. In theory this is correct. But I ask: - 'What can we do when, for instance, a full time lecturer from the design course in Maranhão is appointed to take part in those groups, if that lecturer does not know how

[85] Interview # 2206

[86] Iinterview #2108

to teach design, simply because in that state they have little professional practice? And worst still when his opinion has the same weight as that of the lecturers who come from the regions where the profession is more developed?' And it is worth remembering that today in Brazil there are design schools which do not have necessarily any expression or significance to the general educational context at all. And it is common for the representatives from those schools to bring only the particular problems of their schools which then become the general rule." [87]

This a very important declaration which should have been taken into consideration by the two people who analysed the modifications proposed in the new design curriculum: Itiro Iida and Gustavo A.Bomfim. "The manifestations of these two specialists were in the sense that it would not be necessary to make modifications in the original text of the project, because 'the suggestions received from the institutions interested in that matter refer, almost always, to the formal and semantic aspects, which in the scope of each institution can be compatible, by the flexibility existing in the application of the new curriculum'."[88] But even so, some seem do not have a clear understanding about the way the new design curriculum was developed:

"We do not know the details of the process of elaboration of the new national curriculum . I do not know on what basis it was designed and how much the schools were consulted. In our case the new does not differ too much from the old one that we had. The subjects are more or less in the same form that we treated the former syllabus. And before adapting it, we did what we usually do: we discussed what should be taught and in which subject."[89] (See Appendix #41, which compares the old and the new MEC's design national curriculum).

Because of things like that there are criticisms which should be very carefully considered among Brazilian design educators. Design education has been a field which few people have gone into deeply. And worse, due to the widely accepted concept of industrial design as Design, as much we want to make modifications to modernise our design education, our concepts are very restrictive and archaic. Thus, our attitudes remain the same, without the due planning and considerations over the passing of the years: in 1969, the Federal Council of Education established a national design curriculum; in 1978 the Department for University Matters, formed a team to study a preliminary proposal for a new national curriculum which was evaluated by the representatives of the design institutions and design professionals in the Seminar held in São Paulo: *Desenho Industrial e o*

[87] Interview #2108

[88] The Brazilian national design curriculum, Introductory Report (Appendix es #31 to #33).

[89] Interview #1109

Ensino. Then the same Department constituted a Special Commission for the Study of the National Curriculum of Industrial Design, which improved the original proposal (based on Bomfim's MSc Thesis) and submitted it for discussion in the first meeting of industrial designers in 1979. That new proposal was sent to all the institutions, schools and professional associations in January 1980; and since then the preliminary proposal was generally accepted and adopted.

I agree with the idea that "Brazilian designers continue to repeat processes without contesting them. Once again we are acting like parrots. We continue smuggling design: first from the Germans and now from the Italians."[90] In other words, Brazilian designers were once fascinated by the 'scientific' German design educational model which inspired the 'rational' aesthetics of the late Modern mass produced goods. Therefore, they copied that design education model and wrongly developed a design curriculum out of Brazilian reality, and, so, it failed. Nowadays Brazilian designers are delighted by the 'nihilist' Italian design educational model which is inspired the 'anarchist' aesthetics of the Post-Modern communication, product, and environment designs. However, as Brazilian do not have an Italian post-modern design education model to follow, they are trying to update their German concept of design education, without having their mind changed, and this attitude has nothing to do with the much in vogue post-modern philosophy which systematically rejects all determined values, beliefs in existence, and denies all established authority and institutions. Therefore our chances to succeed in terms of design education, and, consequently, design curriculum are reduced to minimum.

And part of this can be verified in the following section in which I shall be dealing with the problems which directly interfere in the development of design education.

[90] Interview #2211

The Other Problems of Design Education

The limited way in which design concepts have been understood and developed by Brazilian design professionals and educators, confined the Brazilian design educational approach to professional training. Therefore, the aim of this section is to show, through the spoken discourse of interviewed design educators their level of awareness of those problems and their opinion of how some of them could be solved. It was also my intention to know from the interviewees what they consider as being the elements of design language and how these should be emphasised and taught to improve the art of designing.

The narratives recorded demonstrate that it is widely accepted that many Brazilian design education problems are concerned with Design concepts and definitions, although there is no agreement of which definition is the best, at least for educational purpose. Bomfim, one of the leaders in the discussions of Design definitions in Brazil, holds a position where Design is seen in a quite broad approach, although English terms are used to express his ideas.

Bomfim appoints the way in which Design definitions have been understood in Brazil as one of the major problems of design education. He believes that there are two kinds of definitions: the 'formal definitions' and the 'processual definitions'. The former are those which are written or spoken e.g. 'design is...', and are related to a certain social, political, technological and economical context and time in which it was formulated. As a consequence, the more specific, explicit and static is the definition, the less useful it is when applied to other contexts. In contrast, any definition which wants to be widely applied, must be less explicit, specific, and stable. Bomfim prefers the processual definitions because they can be applied regardless their context. He goes on to say, and quite rightly, that: a definition can interfere in the educational aims of a design school. It must be understood that everything which was defined at Ulm as Design belongs to the cultural context of that time; and it is up to us, Brazilian lecturers, professionals and students to give new dimensions or visions of our activities as creators. According to Bomfim, processual definitions suggest a way out for many educational problems. This argument supports Bomfim's belief that the definitions of design in Brazil should not be specified by adjectives regarding some design professional activities.

Some interviewees used design definitions that suggest they have comprehensive and far-reaching concepts of design. For example: "Design is related to the environment, products and communication.

The work of the designer interferes in language, communication and information of the products demanded by consumers"[91]; "There is no difference in the methodology, in the way the fields of design are worked out. However, there are some particular objectives in each of these three areas that eventually make one different from the others, but all design areas are concerned with the ways we communicate and exchange information";[92] "Architecture, Industrial Design, and Visual Communication all have the same roots. All represent and develop some aspects of human life, whether a house, an artifact, a message. These activities form a unity which should not be so departmentalised.The division of the design course into two qualifications happens because there is a lack of systematic understanding which is a consequence of the constant search for specialisation in certain branches, without knowing the roots and the bases of that activity. It is mainly a psychological problem in the formation of the teaching staff. The problem among teachers is serious and has many causes: psychological, cultural, philosophical, ideological and also personal. Contrary positions also means divisions of material, human and financial resources".[93]

Nevertheless, the practice of these statements, according to the following testimony, it seems, is not easy. The restrictive concept of Design in force in Brazil is the main cause for many problems in the development of design education. Let us see the specific case of the UFPE.

"If the lecturers from both courses joined together to achieve the same objectives the educational situation would be better. It was a big mistake to take a large part of the disciplines from one department, because that department does not have teachers capable of teaching some disciplines. And in one way or another they have to resort to the teachers of the other department...The troubles and conflicts in the present courses are derived from emotional and personal aspects among the teachers of ID and VC, and this struggle seems to exist all over the country. The lecturers should sit down and talk not only to settle their personal differences, but also to make their courses better...The students in fact cannot find any unity during their training until they have developed their own criticisms about their professional qualifications, they will remain without understanding the reason for the teachers' differences. The way things are put on each course does not train or inform anybody. Besides, that fight and tension only contributes to the students losing their confidence and stimulus in the course. This is a serious problem. Both departments should review that problem carefully. But, unfortunately the departments are also involved in that fight."[94]

Controversies between industrial and graphic design teachers

[91] Interview #1201

[92] Interview #1204

[93] Interview #2105

[94] Interview #1103

already reached the classroom scope and, unfortunately, this attitude has affected negatively not only the students achievements but also has inhibited the development of design education as a whole in Pernambuco. It seems, however, that in the particular case of the UFPE, it is the industrial design course the one which mostly suffers from the inflexible way of thinking product design.

"...The integration among the lecturers still is not good. In the area of Industrial Design the problems related to the lack of understanding among the teachers did not start with the new curriculum. They have a small team and a course with few resources and the lecturers do not have time to improve themselves simply because they have to spend their time giving classes in many subjects and many disciplines. And this contributes to the lack of understanding and unity. While VC shows a certain maturity in the job market, Industrial Design does not. And to complete the picture the teaching staff of ID do not know how to express themselves or their dissatisfactions. ...What is happening is a change in the leading of the course. Nowadays new teachers want to introduce research as the main basis for project work. And before the course had a practical character. If there was unity in ID the introduction of the new curriculum would be a good moment to put into practice these new ideas. Today CDI/UFPE's lecturers still do not know to what kind of consumer they want to address their academic projects, what kind of productive sector they want to work in and the marketing possibilities of the region. If they acted so, probably half of their problems could be solved."[95]

It becomes clear that the difficulties of the UFPE design courses are also inserted in the more general problems of Brazilian educational structure, for example, the system of selection of candidates to the Brazilian university called *Vestibular.* This system allows students to choose three courses in a specific area of knowledge, in order of his/her vocational preference. In other words, a student who wants to pursuit a career in the Design area has three main courses as options: architecture, industrial design and visual communication. The places in the courses will be filled according to the marks got by the candidates. The architecture course is highly demanding and requires the highest marks. Thus, the candidates who fail in getting the marks required by the architecture course are allowed to fill the remaining places in the industrial design or visual communication courses. Researches have shown that the places in the industrial design course of the UFPE, more than those of the visual communication course, have been filled with students who did not want that career.

"There is a crisis in the industrial design course (CDI/UFPE) because we are aware that sometimes in a class which should have 18 or 20 students, there are only six or less. In the 1989 Annual Report of The 'Vestibular' Commission in Pernambuco, it is shown that of the 20 places offered by the CDI/UFPE, only 30% of the students who

[95] Interview #1204

passed, in fact wanted to be industrial designers, that is to say opted for Industrial Design, ID, as their first vocational option. The other part is composed of 20% of students who opted by ID as their second vocational option, and 50% for ID as their third option. But in my point of view this is not a course crisis only. What happens is that there is in fact little demand for industrial designers. The student with that qualification is more likely to not get a job. We have to remind ourselves that for the industry, design depends a great deal on government policy, new enterprises attitudes, and a dramatic change in the policy for multinational enterprises. In Brazil Industrial Design is developed only in institutions where governmental bodies, like CNPq, support industrial design practice. Otherwise it does not exist. And also that in Brasil we do not have market researches for new industrial products. So if an industry is not researching for a new market and new products, is not redesigning the products already existing, I am convinced that a good production engineer would solve industry's design problems. And for that industry to have a designer would be more like a luxury rather than a need."[96]

Thus, besides the basic problems regarding design terminology and design concepts, the UFPE faces internal problems of relationship amongst the design teachers which, in my opinion, only through design awareness and the understanding of what are the basis of design education can be definitively solved. One of the interviewees summarised those problems as follows:

(i) Lack of design education in the previous levels of schooling - no work has been done towards spreading and highlighting what design is in the primary and secondary levels. There were some attempts in one secondary school, the *Escola de Aplicação*, linked to the university, but these failed.

(ii) The Vestibular - the system of selecting students to enter the university allows students to had chosen architecture but failed to pass, for example, to entry in one of the two others design courses, even without knowing much of them.

(iii) The System of Credits - which enables the students to organise their timetable and so it is possible to attend one or two disciplines a year. This is a threat to the whole university system, causing the classes and groups of students to split and consequently, leading the fragmentation of their particular ideas, needs and proposals. This system only serves the students who want to keep their university status and so get better opportunities in the job market.The system of block serial disciplines, on the contrary, allows the formation of generations of students who, therefore, are stronger not only to demand better quality of teaching but also in determining the distinctive characteristics of their time.

(iv) The *Jubilamento* - there are problems related to students who have been attending a design course for more than 12 years, because the

[96] Interview #1102

university does not have any means of putting an end to that situation.

(v) The Bureaucracy - every 15 days there are meetings of the Council of the Centre of Arts and Communication. That council is composed of the coordinators of the undergraduate and postgraduate courses, and of the heads of the Centre's Departments. However, that council, which should have as its main role to discuss the academic problems of the Centre's courses, only runs like a bureaucratic council. Its function is only to authorise retirement, special holidays, approve process etc. Nothing related to the academic matter of the courses is discussed in order to be presented to the bodies concerned to take the due attitudes to solve the problems detected and debated.

(vi) Lack of Research - the new plan of positions and salaries of the Brazilian federal universities for the teaching staff says that any lecturer, to upgrade from one category to another, needs to be evaluated in the following aspects: 1) academic titles; 2) intellectual production; 3) academic production and; 4) academic management. This process, called vertical progression, does not fit well in the case of art and design teachers. For example last year [1988] five lecturers competed to be upgraded from Reader IV to Professor I, but none achieved the required marks to get the upgrade. Today, even in the horizontal progression, the university requires some kind of intellectual production, but the number of researches developed within our departments is insufficient. For instance, in 1989 in the Department of Art only three of the forty lecturers were undertaking any research. And at the end of this year [1989] the lecturers have to present a report of their academic activities and a working plan for the following year; and it is expected that they will present a research proposal. But, it is up to the heads of the departments to check the development of such researches and not just to leave them written down on paper. Because if this does not happen we will not see any light at the end of the tunnel.

(vii) The Isolation of the Departments - one department does not know what the other is doing or intending to do. To change that recently we suggested that the research proposals were endorsed not only at one department level but at all levels the Arts and Communication Centre.[97]

From the following testimony we can see the extension of the problems at the Federal University of Pernambuco:

> "We lack definition in our lines of academic projects... teachers do not have common educational objectives. And time has shown that by this manner we cannot proceed. Once we thought that the course was to train designers to work in industry... Few are the teachers who make systematic reports about their achievement in

[97] Interview #1103

classroom, their teaching improvements and the goals which they achieved. There are some who are not even involved with the profession which they choose to carry on. So they do not make any effort to improve the course or their disciplines. The major problem of communication among the CDI lecturers is the lack of knowledge about what design is about. I do not mean design just as a definition but the importance of that activity to the community and for the individual. Each lecturer only looks for a definition of design itself, which, they then embrace and so is unable to develop other things and concepts. Each one is limited to talk only about what they know and they cannot develop a reasoning about what they do with respect to the educational aspects. This is a cultural factor and an unclear usage of the natural language. For instance if we ask any teacher to explain his or her activities (s)he only can relate them to the professional practice which (s)he is supposed to perform, but (s)he cannot talk about other themes...And above all we are facing a problem which, it seems, does not have an immediate solution: the question of the teaching of design in the primary and secondary school. I do not mean geometrical or artistic drawing. I mean experimental work with materials and shapes... and design. That is to say to work the mind towards the developing of design, problem-solving and finding problems and so on... Perhaps here in the course we have to start a movement towards the spread of design in these levels."[98]

As a matter of fact, this last paragraph shows a problem that needs to be considered seriously by all those involved with Design Education and Practice not only in Pernambuco but in the whole country. I believe, however, that the definition on what are the elements of the art of designing, that is to say, what are the elements of design language, is crucial for the original development of design education in all levels of Brazilian schools. I went, so, to know what the UFPE design lecturers think about the elements of design language. Despite the fact that the answers were not clear-cut, they suggested clues to form my further thoughts about a structure of design language in next Chapter. One of the interviewees believes that:

" In a course of design the background should be creativity and the knowledge of general problems of society through disciplines of anthropology and history whereby the students acquire the necessary cultural background to the professional practice. It is improper and out of the educational context for visual communication, to introduce disciplines like maths, geometry...The major problem is that the students know nothing about the history of design and also do not have any sort of skills when they come to the universities. One of the means to optimise the design language is to use, in the classroom, all sorts of visual resources. Today we have a visual generation yet where reading does not play part."[99]

The opinion is shared by another lecturer from Rio de Janeiro:

"The new generations have more difficulty in dealing with the verbal language rather than design language. So, we can consider design more in its philosophical

[98] Interview #2206

[99] Interview #1201

context rather than its definitions. And design is the project of anything even those abstract things. And it is a very eclectic profession. All the time we are trying to think of and make, here in the school, things connected to the outside world."[100]

In other words creativity, and a visual education can be considered two of the basic aspects towards the development of a design language in Brazil. When asked about the elements of design language, another interviewee said:

"For me the elements of design language are 'form' and 'information'. These are perfect! Form means production means, materials etc. and this is technology. Form and information are the main aspects of the language of design. From these two one can build anything. And for a better understanding of these two elements the students should be studying and perceiving their own material culture. That is to say what represents to them the objects, the environment, the messages, all of which characterise their own material culture. Therefore students need to know what is the psychological relation between consumer and goods (psychology of perception and cultural anthropology). Then students would start in the field of humanities (sociology, anthropology, psychology etc.) and finish in the science (technology). Students should be trained to be 'designers who think up'."[101]

As we have seen, for some lecturers history, psychology, sociology and other subjects imported from Ulm, like Visual Methodology, should be considered in the design language, but 'form' also appears in the next quotation as the basic element of the language.

"Of the questions which refer to the practical functions of an object, the designer knows less and less. The designer has lost control of how things run. So, form is the basis of Design nowadays." [102]

When asked about the relationship between the elements of artistic and visual language and design language, some teachers have a clear cut view about that matter:

"All the elements of the visual language must be considered but they have to be taught all together. I think that it is very poor to have disciplines called 'colour, line, form, shape, tone etc. All these elements are part of a whole; they do not make sense for design if they are taught as being isolated, because what is important is how the group of elements are adequate to an objective. However it is important to study these elements under physiological, psychological and theoretical conditions to enable the training to be more effective and efficient." One of the problems for the lack of understanding among teachers is due to the low level of theoretical knowledge and intellectualisation of the teachers. And this is due to bad training in the courses themselves. And if the theoretical knowledge is low, then the educational and professional philosophy will reflect that fact, and we must bear in mind that in a

[100] Interview #1109

[101] Interview # 2210

[102] Interview #1107

university course we start from the theory and from there move on to the practice, and this is very important to lead the training of the future designers."[103]

Afterwards I asked about the department autonomy to adapt the design educational aims and alter the new curriculum in order to improve the elements that those interviewees think to be basic towards the development of an original Brazilian design language. I got from one interviewee the answer that although it is the Ministry of Education which defines the general rules to the university, the department has some authority and freedom to change the present curriculum. But, actually what seems to be the major difficulty is the understanding of what the Ministry of Education considers optional or compulsory, that is to say, it is seldom known how to differentiate what is a Government educational act, bill or simply a recommendation. That the lack of a coherent educational philosophy amongst the design teaching staff, it seems, is recognised as another problem. According to the same interviewee, such a condition might be improved and some actions are indeed being taken, for example, (i) the integration of Industrial Design and Visual Communication teachers aiming at the general betterment of design courses; (ii) invitation of experts from the Education Centre of the same university to address lectures on teaching methods and practice, and didactics; (iii) introduction in the new lecturers examinations the requirement of any pedagogical background.

The view about those problems in the following statement of a lecturer from Rio de Janeiro is dramatic, broad and negativist, which in fact has its reasons based in truth, and suggests that problems exist throughout the country:

"As far as I am concerned Brazilian design schools are completely lost. The teaching staff is more and more lost in terms of design education. In fact the ESDI was the only real thing which happened in Brazilian design education. And since its foundation nothing more has happened. There is no new proposal, or thinking or work or even unity of ideas, among those responsible for design education. And this I think is related to the process of design maturing in Brazil. Only after almost thirty years we are settling. In fact we have many design schools which look more like pieces of a house which is not yet built. ... Anyone cannot develop a work otherwise that work is made by a group of people with unity and pluralism. There is no dialogue; there is no understanding; there is no direction interested in [design] educational questions. We lack somebody's will to drive us, because the majority of the teachers do not have a background in professional practice. The majority of teachers know how to talk very well about design... they even have a high cultural level, but they do not know how to design professionally. They fill their classroom time with things which sometimes are very interesting, but that one can not call project. They do not even know how to detect a design problem, because when you detect one the problems's solution is almost addressed. The educational problem are so important that in Canasvieiras the ABEND

[103] Interview #1102

was created. But so far, I think that institution will not pass being simply an intention, because the present Brazilian university context is favourable to this apathy."[104]

In order to conclude this chapter I would point out that the material recorded in the interviews represent a significant resource for further research about design education in Brazil. Many interviewees demonstrated acute awareness of the design educational problems and interesting insights of their possible solutions. Some exhibit a clear understanding of the evolution design concepts have been suffering, and their statements sometimes are in tune with European designers. However, although it is a truth perceived by a few, it is not quite yet a settled conviction with the Brazilian design educators at large that what should be counted nowadays to the material culture is the appreciation and adaptation of the environment, products and messages rather than their means of production. So, we seldom find in the Brazilian design educators' spoken discourse an emphatic statement like that of the Italian designer Mario Bellini, for example, who says that "the term industrial design is redundant... it is wrong to separate industrial design from the rest of design and architecture. It is better to talk about furniture design, object design, machine design and so on. Industrial design means anything designed for the industrial process, but what does that mean?... Product is now more important than process... I think it is very positive this new crossing between the pure art and applied art and design, because this interchange will nourish both the user's culture and the designer's culture."[105]

The final quotation of this chapter is an extract from the interview with one of the Brazilian design educators who show knowledge and understanding of the role and the value of design for contemporary societies. It elucidates, however, that in the particular case of Brazil many design education problems are encountered in the design educators inability to sort out simple issues. Brazilian design educators are in general disarticulate and thus are not able to discuss and disseminate their theories and practice.

"A designer working within industry is subject to a certain kind of pressure e.g. schedules, rules and regulation, working regime, etc., which constantly and completely inhibits his project capability. And this is what I heard from the Italian designer David Mercatalli : - 'the Italian designer who works in industry is not a designer'. I think this is a very radical position but I do understand his view. As I also understand the fact that nowadays Italian designers are no longer interested in mass production or in huge markets, as the main factor in their project activity. On the contrary they are interested

[104] Interview #2210

[105] Lucie YOUNG, *Down with Industrial Design* , **Design** (London: The Design Council, January 1989, n.481) pp.50-1.

in different markets which show great possibilities to absorb everything which can be designed. That is the reason why they are designing products to be produced in a series of 5, 10, 100 units in the maximum...In the Brazilian society even the ice-cream seller has his profession regulated and recognised by the government as is the same for yoga teachers and many other small professions. In our case this is concerned with the fact that Brazilian designers are incompetent. We do not even have the capacity to form lobbies... All the problems in [Brazilian] Design are so undefined, individual and inorganic. So we do not even have the strength to put pressure on half a dozen politicians to get the profession regulated and recognised... When you specify 'industrial' design it is clear that you are referring to a certain kind of project which is intended to be produced by industrial means. And I have been arguing this question for a long time. Our schools continue to train people to work inside the industry. And that is the big bluff, and so the misunderstanding remains... Actually the tertiary sector (services) is the sector with more demands for works of design in Brazil; not the secondary (industrial) sector. We have to bear in mind that mechanised industry is only a means of production like any other. And the problem is that the schools do not know what design must be taught."[106]

[106] Interview #2211

CHAPTER IV

A STRUCTURAL MODEL FOR DESIGN LANGUAGE

Another area of human knowledge

During the academic year 1976-7 at the Royal College of Art in London, Prof. Bruce Archer gave a set of seminars under the title *A Philosophy for Design.* According to the editor of two of Prof.Archer's papers presented at that seminar 'he presented compendiously the outcome of his many years spent in studying design, design methodology and what he usefully calls 'material culture'. Perhaps for the first time this aggregation of human activities was laid out, looked at, classified, given conceptual coherence, and finally put forward as a new and major field for education and research'.

The two main themes at that seminar were: (i) that there exists an under-recognized but definable third area of human knowledge, additional to numeracy and literacy; (ii) that this third area should be given proper esteem and proper provision of resources in our general system of secondary education, and also that it should be the subject of systematic study at the higher-education level.

These are important points to be considered in this work because so far Design has not been understood in Brazil as an third area of human knowledge and, therefore: (i) Brazilian design educators have not made any real move to enlarge the scope of design education in primary and secondary schools.[1] On the contrary design educationists in particular are trying to initiate a movement towards the establishment of design

[1] In the Canasvieiras Letter, Items 3 and 4, it is proposed to present to the Brazilian Congress a proposal for the reestablishment of the teaching of 'drawing' as language and expression, and as an instrument necessary for the development of the critical and creative capability in primary and secondary education (Item 3); and to establish techical courses at secondary level in order to "train technicians to work under the coordination and supervision of designers" (Item 4).

postgraduate courses in the country, as is suggested in the paper *Contribuições ao Tema: Pós-Graduação em Desenho Industrial* , and the report *Workshop Pós-Graduação em Design no Brasil* ;[2] (ii) Brazilian professional designers in their Designers' Professional Regulation Bill, and, until recently, in the titles of their professional associations, insist on making a clear difference between those who are graduate designers and those who are not. Therefore the kind of design education that they have been talking about is only vocational and elitist; as Medeiros says - "design education in Brazil at present is elitist in that only those who attend the universities benefit from it, and is narrow in scope, in that it is exclusively vocational."[3]

Considering the implications of the points above, and aware that for the broad understanding of the design language structure model to be presented, there is needed something more than a simple model - for instance there is needed a convincing philosophical argument to support the structure of the design language - I resorted to the educational discourse of two outstanding British design educators, Bruce Archer and Ken Baynes, upon which to base my ideas. What I intend is to show that if Brazilian design educators believe, like I do, that: (i) Design is the third area of human knowledge, and, as such, it needs to be part of the general education of all Brazilians; and (ii) the ability to design and to understand Design are inherent to all human beings, the design language model presented next may not only will be a valuable source to plan and evaluate Brazilian vocational design courses (by means of curriculum), but may also help to identify the priorities of design educational objectives at any level of Brazilian schooling.

---

[2] Gustavo Amarante BOMFIM, **Contribuições ao Tema: Pós-Graduação em Desenho Industrial** (Position Paper presented at the "workshop O Ensino do Desenho Industrial nos Anos 90", Held in Canasvieiras, Florianópolis, Brazil, in July 1988). The Item 27 of the Canasvieiras' Letter says that it is necessary to start the studies aiming at the establishment of postgraduation courses at Master level.

UFPB/Laboartório de Desenho Industrial, **Workshop Pós-Graduação em Design no Brasil** (Campina Grande: Universidade Federal da Paraíba, 20 e 23 de março de 1990) 15pp.

[3] Ligia M. S. de MEDEIROS, **Towards Design Awareness In Brazil** (London: MA Thesis , Department of Art and Design, Institute of Education, University of London, 1990) p.75.

A third area in education

The categoric way in which Bruce Archer introduces his paper *Time for a Revolution in Art and Design Education*[4] should be considered by Brazilian design educators seriously because the core of this dissertation suggests that the understanding of Design and, consequently, the definitions used in Brazil to identify it, and its educational field, are not foolproof when examined even in their own words. "The world of education is full of anomalies. No definition or categorization or form of organisation devised for one purpose seems to remain valid when applied to another purpose. Few educational definitions are watertight even when examined in their own terms". This statement also could be used to endorse one of the main issues of this work which is concerned with the Brazilian common concept of Design as being Industrial Design. That is to say, such a categorization is not valid, for instance, to widespread design education in the country.

To exemplify what he stated, Prof.Archer resorted to an old English expression *The Three R's*, which is commonly used in Britain to refer to the basic aims of the formal education system.

"Take that extraordinarily durable expression 'The Three R's', for example. It is very widely held that when all the layers of refinement and complexity are stripped away, the heart of education is the transmission of the essential skills of reading, writing and 'rithmetic. This expression is internally inconsistent, to begin with. Reading and writing are the passive and active sides respectively, of the language skill, whilst 'rithmetic is the subject matter of the other skill which, at the lower end of the school, we tend to call 'number'. So the expression 'The Three R's' only refers to two ideas: language and number. The first idea, language, is referred to twice and the second idea, number, is referred to once. Moreover, the word 'arithmetic' is mispronounced as well as mis-spelled, giving the impression that the speaker takes the view that the ability and the necessity to sum is somehow culturally inferior. If challenged, most who use the expression would deny they intended any such bias, but aphorisms often betray a cultural set. Explicit or implied denigration of Science and numeracy in favour of the Humanities and literacy was certainly widespread in English education... the two cultures may be less isolated from one another these days..., but the idea that education is divided into two parts, Science and Humanities, prevails."[5] An idea which can be perfectly applied to the

[4] Bruce ARCHER, **Time for a Revolution in Art and Design Education** (London: Royal College of Art Papers No.6, 1978).

[5] Ibidem, p.4.

Brazilian case because its educational system is basically 'scientific' and 'humanistic', and those fields which can not be considered as part of the Science and of Humanities, have little significance for Brazilian educational system: "The future of Art in Brazil is in serious risk. A new Federal Law for Education has been proposed and there are already some projects that extinguish Art from the primary and secondary school's programmes."[6]

Archer goes on to say: "There are many people, however, who have always felt that this division leaves out too much. Art and craft, dance and drama, music, physical education and sport are all valid school activities but belong to neither camp. There is a substantial body of opinion, not only amongst teachers but also amongst groups outside that profession, which holds that modern society is faced with problems such as the material culture problem, the ecological problem, the environmental problem, the quality-of-urban life problem and so on all of which demand of the population of an affluent industrial democracy with competence in something else besides literacy and numeracy... It is really rather an alarming thought that most of those who make the most far-reaching decisions on matters affecting the material culture... had an education in which contact with the most relevant disciplines ceased at the age of thirteen."[7] This statement refers to the particular case of British society. However, if one notes the Brazilian case the picture becomes even worst. For instance a superficial review of Brazilian 'decision-makers' attitudes towards general education, developement of material culture, and conservation of the environment, indicates the lack of 'most relevant disciplines' in the decision makers educational background.

According to Archer "the idea that there is a third area in education concerned with the making and doing aspects of human activity, is not new, of course. It has a distinguished tradition going back through William Morris all the way to Plato... Certainly the craft guilds, who bore a major responsibility for the general education of the populace following the Renaissance, took the view that virtuous education meant learning to know what is practicable, what is good, what is comprehensive and what is enough, in a very broad sense. It is a curious twist in fortunes that when the craft guilds lost their general educational role... it was the rather narrow, specialist, bookish universities, academies and schools which had been set up to train

[6] Ana Mae BARBOSA, *The Underdevelopment of Art Education: political intervention in Brazil*, Journal of Multi-cultural and Cross-cultural Research in Art Education, Vol.5, No.1 (1987) p.28.

[7] Ibidem.

priests to read and translate the scriptures which became the guardians of what we now call general education. No wonder our educational system came to be dominated by the Humanities. When Sir William Curtis MP, coined the phrase 'The Three R's' in or about 1807, he placed an emphasis on literacy which reflected the virtual monopoly which the church then had in the running the schools." [8] Nevertheless, it seems that those who, sometime somewhere, stopped to think about this matter, disagreed fully with that monopoly (see for example the case of those who planned the British National Curriculum, where, Craft, Design and Technology are foundation subjects for all 5-16 years old students in all British Schools. And, according to Archer accounts for those who realised that the educational system reflected the virtual monopoly of Humanities, like his great-aunt, "protested fiercely whenever the phrase 'The Three R's' was mentioned. She swore that Sir William had got it all wrong. The Three R's were :

1. Reading and writing;
2. Reckoning and figuring;
3. Wroughting and wrighting.

By wroughting she meant knowing how things are brought about, which we might call technology. By wrighting she meant knowing how to do it, which we would now call craftsmanship. From reading and writing comes the idea of literacy, and by which we generally mean more than just the ability to read and write. Being literate means having the ability to understand, appreciate and value those ideas which are expressed through the medium of words. From reckoning and figuring comes the idea of numeracy. Being numerate means being able to understand, appreciate and value those ideas that are expressed in the language of mathematics. It was from literacy that the rich fabric of the Humanities was woven. It was from numeracy that the immense structure of Science was built. But what of wroughting and wrighting? It is significant that modern English has no word equivalent to literacy and numeracy, meaning the ability to understand, appreciate and value those ideas which are expressed through the medium of making and doing. We have no word equivalent to Science and the Humanities, meaning the collected experience of material culture."[9] From this account it is evident that English people too have problems of choosing nomenclatures. However, their case cannot be compared with the Brazilian one. If, on the one hand, Archer was trying to find a word

[8] Ibidem.

[9] Ibidem, pp.4-5.

and an expression, or perhaps a neologism, which could identify an area of human knowledge, a third area of education, and its equivalent to literacy and numeracy; Redig, on the other hand, was searching for a word or expression, or perhaps a neologism which could be used to identify simultaneously the vocational education and the careers of industrial design and visual communication (the latter nowadays understood, in Brazil, as graphic design). And as we will see in the next account if, at least, Brazilian design educators had understood the wide scope of the area which, in the early sixties, it was tried to systematise its professional activity and educational practice in the country, certainly the name to identify such an area should never have been Industrial Design.

"There is a third area in education, what distinguishes it from Science and Humanities?... Science is concerned with attainment of understanding based upon observation, measurement, the formulation of theory and the testing of theory by further observation or experiment...Humanities are especially concerned with human values and the expression of the spirit of man. This justifies scholars in the Humanities in studying the history and philosophy of science, but not in contributing to its context... A third area in education could therefore legitimately claim technology and the fine, performing, and useful arts, although not their scientific knowledge base (if any) or their history, philosophy and criticism (if any) without treading on anyone else's grass... Clearly the ground thus left vacant by the specific claims of Science and Humanities extends beyond the bounds of the 'material culture'... Material culture comprises the ideas which govern the nature of every sort of artefact produced, used and valued by man. ...Where the Science is the collected body of theoretical knowledge based upon observation, measurement, hypothesis and test, and the Humanities is the collected body of interpretative knowledge based upon contemplation, criticism, evaluation and discourse, the third area is the collected body of practical knowledge based upon sensibility, invention, validation and implementation."[10] Considering the restrictive view of design education in Brazil I totally agree with all of Bruce Archer insights.

One of the things that seems evident in the attitudes of Brazilian design educators (including myself) is that, due to the lack of an original design education, we usually wait for the ideas of foreign design educators, to lead our educational discourse. This is so true that Gui Bonsiepe's last articles published in the Brazilian magazine *Design&Interiores* seem were well accepted amongst Brazilian design educators circle. In one of his articles about the teaching of design he

[10] Ibidem, pp.5-6.

says for instance: "the concept of teaching and education needs new foundations: how to train innovators if the action and information are disconnected. ... design is based on language. The linguistic distinctions are those which build the room in which design occurs. ...Design, beyond being a professional specialism, is an ontological attribute of humankind. ...For the nineties we can foresee a large development of a number of design activities, and the rupture of the limits which restrict design to its traditional divisions of industrial design, graphic design, and architecture..."[11] In another article about the role of Design in Latin America Bonsiepe's ideas almost coincide with Archer's. Bonsiepe says that "Design is not science (and less still art), but it needs a rigorous technical discourse to acquire weight and power. ...design is, in first, second and third place, design, and not art; nor with a capital letter, nor a small letter."[12] Those articles seemed to have strong repercussions for Brazilian design educators. The first was used as a source in the meeting to discuss the question of Brazilian post-graduation courses in Design.[13] And the second, because of its original Spanish title - *Diseñando el Futuro: Perspectivas del Diseño Industrial y Gráfico en America Latina* [14] (Designing the Future: Perspectives of Industrial and Graphic Design in Latin America); and because in it appears several times the English word *design* instead of *desenho* - we can infer that Bonsiepe himself agrees with the terminology proposed in Canasvieiras, and with the kind of design education that there was thought to Brazil: industrial and graphic design. Despite the fact that I agree with a part of the educational discourse in those two Bonsiepe articles, I totally disagree with the way his texts were presented in Portuguese: full of English words. And the reason for that unnecessary usage of the word design is found in the passage of his second article where he says that design is design,whether with a capital or a small letter. If Bonsiepe, had used the Portuguese word *desenho* with a capital "D" to refer to the area of human knowledge, I am convinced that his texts would have contributed definitively not only to change and enlarge the concepts of Design in the

[11] Gui BONSIEPE, *No Futuro a Reformulação*, **Design&Interiores** (Fev 1989, Nº12) p.125.

[12] Gui BONSIEPE, *O Futuro do Design na America Latina*, **Design&Interiores** (Out 1989, Nº16) p.140.

[13] Report of the "***Workshop Pós-graduação em Design no Brazil***", Promoted by the Laboratório de Desenho Industrial, Universidade Federal da Paraíba. Campina Grande (PB),20-23 March 1990.

[14] Gui BONSIEPE, **Diseñando el Futuro: Perspectivas del Diseño Industrial y Gráfico en America Latina**. Paper addressed to an audience mainly composed of information technology scientists, mathematicians and engineers at the Monterrey Institute of Technology in Mexico. April 1989.

mind of Brazilian design educators, but also to save the integrity of Portuguese language.

Due to some similarities between the recent Bonsiepe design thoughts and those of Archers and Baynes', I cannot believe that he has not read these, and other, British design authors. However, this time, it seems the Germans are not drawing too much attention to the contemporary British discourse on Design, unlike Semper, Muthesius, and even Gropius.

Archer goes on to say: "This leaves us with the problem of finding the correct title for the third area. The term 'the Arts' would be ideal, if the expression had not been appropriated by, and used more or less as a synonym for, the Humanities. Plato would not have objected to 'Aesthetics', but that has taken on a special and distracting meaning in modern English. 'Technics' has been used, and is in the dictionary, but has not proved very popular in educational or common use. A term which has gained a good deal of currency, especially in secondary schools in England and Wales, is 'Design', spelt with a big D and used in a sense which goes far beyond the day-to-day meaning which architects, engineers and other professional designers would assign to it. Thus 'Design' is equated with Science and Humanities, is defined as the area of human experience, skill and understanding that reflects man's concern with the appreciation and adaption of his surroundings in the light of his material and spiritual needs. In particular, though not exclusively, it relates with configuration, composition, meaning, value and purpose in man-made phenomena. We can then go on to adopt, as an equivalent to literacy and numeracy, the term 'design awareness'[15] which thus means the ability to understand and handle those ideas which are expressed through the medium of doing and making."[16] This wide and valuable concept of Design as a basic human need and characteristic is, I believe, the one that we should use to base our approach to and develop of Brazilian design education: it may be applied to all levels of schooling, and therefore, it may, indeed, enlarge the field of professional design activities and educational practices far beyond the limits of architecture, industrial and graphic design.

An understanding of the next of Archer's ideas is crucial for understanding some points further related to the characteristics of a design language. This quotation also bridges Archer's educational

[15] Considering that the word 'letter', which is the root for **literacy**, and is derived from the Latin "littera"; and that the word 'number', which is the root for **numeracy**, and is originated in the Latin "numeru", I wonder why Prof.Archer did not create a neologism like for instance **designacy**, because the word design come also from the Latin "disegno".

[16] Bruce ARCHER, op.cit., p.6

discourse with Baynes'."The question of the language in which such ideas may be expressed is an interesting one. The essential language of Science is notation, especially mathematical notation. The essential language of the Humanities is natural language, especially written language. The essential language of Design is modelling. A model is a representation of something. An artist's painting is a representation of an idea he is trying to explore. A gesture in mime is a representation of some idea. Everyone engaged in the handling of ideas in the fine arts, performing arts, useful arts or technology employs models or representations to capture, analyse, explore and transmit those ideas. Just as the vocabulary and syntax of natural language or of scientific notation can be conveyed through spoken sounds, words on paper, semaphore signals. Morse code or electronic digits, to suit convenience, so the vocabulary and syntax of the modelling of ideas in the design area can be conveyed through a variety of media such as drawings, diagrams, physical representation, gestures, algorithms - not to mention natural language and scientific notation... The repository of knowledge in Science is not only the literature of science but also the analytical skills and the intellectual integrity of which the scientist is guardian. The repository of knowledge in the Humanities is not simply the literature of the humanities but also the discursive skills and the spiritual values of which the scholar is the guardian. In Design, the repository of knowledge is not only the material culture and the contents of the museums but also the executive skills of the doer and maker."[17]

A central issue in this dissertation regards the establishment of a specific terminology to understand the concepts of Design in Brazil. And from Archer's words one can understand the relevance of that aim: "The most fundamental intellectual tools in any discipline are an agreed terminology, an agreed method of classifying the phenomena handled, and, most valuable of all, an agreed method for comparing, ordering or measuring. In other words, a discipline needs a language, a taxonomy, and a metrology... Design has a highly developed language in its range of means of graphic expression, from representational drawing, through orthographic projection to graphs and diagrams." And this is what Archer calls 'modelling'. Therefore the "study of the vocabulary, syntax and media for recording, devising, assessing and expressing design ideas - Design Language is vital."[18] However, in my opinion, to create a design language model which could be adopted not only in the primary and secondary levels of schooling but also the tertiary, one has to consider something more than morphology, syntax, and medium of

[17] Ibidem, p.6.

[18] Ibidem, p.7.

transmission, e.g. semantics.

I would add to Bruce Archer's outline those other areas that I presented in the former chapters, in order to establish four distinct areas of understanding 'design' in Brazil (e.g.): the linguistic (denotations), the conceptual ranges (connotations which influences the denotations) (Chapter I); the vocational sphere (professional activities which influence the connotations) (Chapter II and III); and, in this Chapter, the educational outlook (analogous with Science and Humanities which, can influence all the previous aspects, and, consequently, be influenced by them all. The first three areas received extended explanations in previous chapters of this work. The fourth level, however may need acknowledgment.

I can confirm that Bruce Archer and Ken Baynes are, amongst British design educators, those who definitively made me recognise the value and role of Design Education. Ken Baynes is a freelance teacher, designer and an eminent member of the British Design Council's Primary Education Working Party. According to Dr.Anthony Dyson, from the Department of Art and Design at the Institute of Education, University of London, "Ken Baynes' contribution represents a welcome reflection of the Department's increasing commitment to Design Education; but it is, most of all, an eloquent statement of his own central conviction that children are, naturally, designers."[19]

Not only did Baynes' writings about an inherent human 'design intelligence' make me review my pedagogical discourse, but also his analogy regarding design with language was paramount to the development of the ideas presented in this Chapter. "One of the ideas underlying the development of design education in schools is that the ability to design and the ability to understand design are inherent in all human beings, The argument is that just as with language, so also with design, it is a normal outcome of human intelligence to behave in this way. So long as the child is exposed to language, he or she will be motivated to use and understand it. So long as the child interacts with and changes the environment, he or she will be designing and understanding design. ...At a philosophical level the analogy with language is a good one."[20] This statement by Baynes, I am convinced, could certainly change the Brazilian concept that the ability to design is only a privilege of those who have a degree in industrial or graphic design.

---

[19] Anthony DYSON(Ed.), **Art and Design Education: heritage and prospect** (London: Institute of Education, University of London, Bedford Way Papers 14, 1983 First Edition; 1986 Second Edition) p.9.

[20] Ken BAYNES, *Designerly Play*, in A.Dyson, Art and Design Education:..., op.cit.,p.64.

And Baynes goes on to explain: "It is typical of all human societies, however basic their culture and technology, that they create a made world from the natural resources in the environment. Everywhere groups of people have made shelters, settlements, tools, and utensils. The work of doing this is as much a part of the definition of 'humanness' as the use of language, living together in ordered social groups, or the attempt to explain philosophically what life is about... Seen in this light, design is the ability to imagine and then bring about desired changes in places, products and communications. How does this kind of imagination work?[21] Recent psychological research suggests that it depends on the ability to form in the mind a complex and realistic model of external reality or imagined things. This model cannot be expresses in words. It has parallel properties to the physical world as interpreted through our senses of sight, hearing, touch and taste, and has in fact been shaped by perception... Ever since the Gestalt psychologists introduced the idea that children have an in-built pattern of intelligence that predisposes them to recognise qualities such as proximity, sameness, closure, symmetry and contrast, we have caught more and more glimpses of the 'lexicon' or grammar that human beings use in their perceptual transactions with the physical world. We know now that even young babies have well-formed and usable concepts of objects and the edges of objects and of the difference between solids and voids... Further evidence of the Gestalt view can be found in what people have actually made. There is a clear and direct link between the perceptual predisposition and the design output of human societies. Here again proximity, sameness, closure, symmetry and contrast (amongst other) are qualities that can be seen in buildings and products from all cultures. Rather as with the world's language which are hugely varied but which all display the underlying logic and form of language, so too with designs... When dealing with any aspect of human intelligence it is useful for teacher to be able to distinguish between the inevitable development of an ability and what can be done deliberately and consciously to aid its growth. That analogy between language and design is useful again. Any baby growing up in an environment where people

[21] Vera COGHILL, a former Royal College of Art research student, who nowadays is a nursery school teacher and designer who has been studying the design ability of very young children. She recognises, in the analysis of the particular attachment of a child to a beloved thing, the emergence of that special sensibility towards the environment that enables people to create places and products that combine symbolic and practical utility in a single entity. See for example her article *Making and Playing, the Other basic Skills: design education for the early years.* In Anthony DYSON (Ed.) **Looking, Making and Learning: Art and design in the Primary School** (London: Kogan Paul/ Institute of Education, University of London, Bedford Way Papers 36, 1989) pp.56-69.

are talking will learn the use of language. As Noam Chomsky[22] puts it, humans have a 'language acquisition device'. Language is 'wired-in' to the human mind; people are predisposed to learn to speak... Exactly the same is true of the wired-in predisposition to interpret and shape the environment. Unless it is deliberately fostered through teaching and learning, access to it will be lost by those who once possessed it. They will grow up dumb in this respect, unable to communicate effectively with themselves or other people about this aspect of human behaviour."[23] From this I assume that design education is not only related to the transmission of manual skills for the practice of a specific design career. And, as in Brazil we lack design education in the basic levels of schooling, the existing Brazilian design education must also be guided to recover our students' inherent ability to design and understand design, and, so, enable them not only to learn a set of skill, but also to communicate effectively with Brazilian people through their designs. In conclusion Brazilian design educators need to understand, at least, that: (i) "Design, is about future. It is also about working in society."(Baynes, 1989, p.77); (ii) "Design will be the foundation of university in the future, it will be the factor for integration of a disintegrated and disperse teaching." (Bonsiepe, Feb.1989, p.125).

To adopt these concepts of Design to guide the philosophical approach not only in existing Brazilian design education at tertiary level, but also as the base for future establishment of design education in Brazilian primary and secondary schools would be valuable. I am convinced that if there was be a consensus about this issue, it is probable that we will soon have in Brazil our own original concept of Design and Design Education, based on our cultural values and social characteristics. It is also my belief that the redefinition of educational aims and priorities of design education in the country will depend on the characteristics of each Brazilian design school. Therefore, an understanding of the Design Language Structure Model, presented next, could be a very useful basic tool to guide changes in attitudes.

---

[22] Avran Noam CHOMSKY (1928 -) Professor of Linguistics at the Massachusetts Institute of Technology, in 1957 published the work Syntactic Structures, which proved to be a turning point in 20th-century linguistics. Chomsky's proposals were intended to discover the mental realities underlying the way people use language: competence is seen as an aspect of our general psychological capacity. Regarding with Baynes quotes please see A.N.CHOMSKY, **Language and Mind** (New York: harcourt Brance Jovanovich, 1968).

[23] Ken BAYNES, *The Basis of Designerly Thinking in Young Children*, in Anthony DYSON (Ed.) Lookin, Making and Learning, op.cit.pp.70-85.

The Design Language

What we have seen through this dissertation is that sometimes we do not have words to express some ideas in the field of Design. I believe that this is mainly related to the fact that few people have attempted to systematise the knowledge which had already been passed into what is called the Theory of Design, i.e. the aggregate body of knowledge constituting the scholarly support, which the practice of design and the teaching of design at all levels of education lacks, according to Bruce Archer.

To develop the structural model of design language, I have resorted to the structure of natural language itself. Not only because of the analogies made by Ken Baynes in his essays, but also because:

(i) it is well known that the science of natural language, the Linguistics, is now very well developed and systematised due to the fact that natural language has been an object of fascination and subject of serious inquiry for over 2,000 years;

(ii) today it is a widely practised academic discipline, with several domains of application;

(iii) many design theoreticians[24] use linguistics terms to express and discuss ideas about design language; and

(iv) in 1982 Michael Twyman, a British typographer, proposed a diagram to represent the several modes of graphic expression in relation to the study of other kinds of human visual communication and to the linguistics' use of the terms 'spoken' and 'written' language. Twyman subsumes all graphic effects under the heading of 'graphic language': verbal (written), pictorial (e.g. drawings), schematic (e.g. diagrams);.[25]

Having in mind the Twyman's diagram, those who believe that design is only concerned with the three- and two-dimensional aspects of mass produced goods, would be attempted to classify design language as being concerned with the human faculties of 'sight' and 'touch', which is based on 'drawings' as the main means to communicate, express and "convey information and ideas".[26] And that way of classifying design language could not be considered wrong. It would only be incomplete.

---

[24] See for example:

(i) Wassily KANDINSKY, **Ponto, Linha, Plano** (Lisboa: Edições 70, 1989);

(ii) Wassily KANDINSKY, **O Curso da Bauhaus** (Lisboa: Edições 70,1987);

(iii) Johannes ITTEN, **Design and Form: The Basic Course at Bauhaus** (London: Thames and Hudson, 1975, revised edition)

[25] Michael TWYMAN, *The Graphic Representation of Language*, **Information Design Journal**, n.3, 1982, pp1-22.

[26] Peter GREEN, **Design Education** (London: Batsford, 1974) p.59.

Therefore I think it is more convenient to characterise design language as being:

(i) Another kind of man's expression in which all five human senses - smell, taste, hearing, sight, and touch - need to be considered because, according to Baynes, it is possible to develop in the mind a complex and realistic model of external reality in order to improve our ability to imagine and then bring about desired changes in places, products and communications; that which Archer refers to as 'Cognitive Modelling' seeing multi sensory pictures. It is important to acknowledge the complexity of cognitive modelling, the 'seeing' of multi sensory pictures in the 'mind eye'. A natural attribute of all of us, and are which is developed in conjunction with other areas of modelling by professional designers. The complex relationship between our senses, and external forms of modelling e.g. drawing; information technology images; or 3D spacial models is an area of investigation beyond the scope of this thesis, but relevant to the language model, in that it is an essential aspect of design capability, and design practice, relevant to all levels of education, and our 'designerly ways of learning' which are common to all of us. According to Close, we must be careful not to see cognitive modelling as 'the screen in the machine'[27] not as an a priori to action, it is the result of, and impetus for, action upon the world, the complex interaction of mind, body, and material culture. Cognitive modelling requires us to accept an holistic view of ways of learning and thinking, which go far beyond conventional notions of numeracy and literacy as related to traditional educational models.

(ii) A human inherent ability in which its essential expression is 'modelling' - the representation of something by which the ideas in design area can be conveyed through a variety of man-made and machine-made media such as: Verbal Modelling: e.g written and spoken language; Graphic Modelling: e.g. photographs, drawings, diagrams, charts; Physical Modelling: e.g. maquette, mock-ups, models in paper, clay, wood, plaster, prototypes; Information Technology Modelling: e.g. computer aided drawing and design(CAD).

Design Language
|
Senses
Smell.Taste.Hearing.Touch.Sight.
|
Modelling
Verbal / Graphic / Physical / Information Technology

[27] Please see David CLOSE, **Interdisciplinary Ceramics** (London: Royal College Of Art, Design Education Unite, MA Thesis 1986).

Whereas the structure of natural language may be taken for granted, design language is not, despite the fact that it is present in the components that underlines every single place, product or message. Most people find it difficult to recognise such a structure probably because they were not provided with the opportunity, throughout their formal education, to experience and understand design.

A simple but effective way of sensing the variety and complexity of design language structure is to go for a walk in your own city, suburb or street and take note of every building, urban equipment, shop signs, or simply to observe the quantity and variety of devices, artifacts and utensils which are used in your own home. And although apparently disconnected, if you stop to observe carefully any of those examples, from different design language usages, the patterns will gradually emerge. Some features will stand out, and some may be recognised. And the more you see, touch, experiment, handle, use or compare, the more you may find yourself distinguishing familiar and unfamiliar patterns e.g. lines, textures, geometrical shapes and forms, colours, styles. However, design language is not only concerned with the basic elements of visual arts. Design language has other aspects which must be considering or in analysing an existing kind of design, whether in the training of those who want to become a professional designer. Most of the ideas presented in this section result from analogies made with the structure of natural language suggested by David Crystal.[28] It is an attempt to propose a design language model which can be used in Brazil as a basis for design curriculum planning and evaluation in any level of schooling.

The Structure of Design Language

There is too much involved in a piece of design to permit somebody to assess or describe its characteristics with a single and simple statement. Even in a short stiff straight piece of wire pointed at one end and having a flattered head at the other - a drawing pin or tack - several things are taking place at once. Each of its parts convey a particular meaning. There is a likely order in which the parts may appear, and each one with a specific sequence of functions. As a whole

[28] David CRYSTAL (1941 -) reads English at University College London, where he obtained his doctorate in 1966. He was Professor of Linguistic Science at the University of Reading from 1975 to 1985. David Crystal is currently Consultant Editor of *English Today* and Editor of *Child Language teaching and Therapy and Linguistics Abstracts* and Professorial fellow at the University College of North Wales, Bangor.

its shape suggests a particular function, to choose a pushpin constrains the occasions when it might be used: mainly to fasten pieces of papers, notes, pictures etc. onto walls or bulletin boards. While that little piece of design is being handled, we are not conscious of all these facets of its structure, but once our attention is drawn to them, we can recognise that there is indeed a structure behind it.

We could even concentrate on the study of one of these facets largely to the exclusion of the others - something that takes places in some classes in the Design vocational courses. This is known as 'product analysis teaching', where the students may learn about aspects of form, function, cost, material, aesthetics, means of production and so on. But selective focusing of this kind is what we could call 'design linguistics'[29] studies, as part of the business of discovering how design language works, and of simplifying the task of designs' descriptions.

In Linguistics these different facets are known mainly as morphology, phonetics, phonology, syntax, and semantics and usually are referred to as 'levels' of linguistic organisation, where each level is studied using its own terms and techniques, enabling us to obtain information about one aspect of natural language structure, while temporarily disregarding the involvement of others.

The notion of levels can be widely applicable, especially when someone is engaged in the analysis of a range of places, products, and messages, as it enables us to see and state patterns of organisation more clearly and succinctly than other ways that have so far been devised. According to Crystal "levels appear to have a certain empirical validity in psychology and neurology contexts also." This is a very important issue for the case of Design Education because the absence, deficiency or underdevelopment of one of the levels of the design language can be studied under the taxonomy of the educational objectives: the cognitive domain; affective domain; or psychomotor domain.[30]

Nevertheless, it is worth having in mind that when we isolate a level for independent study, we are introducing an artificial element into our enquiry whose consequence must be anticipated. For instance techniques of production used in building places, products and messages that are studied in design courses are, after all, the substance through which the design language grammar is conveyed. There will therefore

[29] Making an analogy with the expression "Mathematical Linguistics" which means "the study of the mathematical properties of language, especially using statistical or algebraic concepts", we could have "Design Linguistics as the study of the design properties of the man-made' language phenomena."

[30] Abou that matteer please see Benjamin S. BLOOM et alii, **Taxionomia de objetivos educacionais** (Porto Alegre: Editora Globo, 1983).

be the interrelationships between levels that need to be taken into account if we wish to understand the way design language is organised as a whole. As with any structure, the whole cannot be broken down into its constituent parts without loss; and we must therefore always remember the need to place our work on individual levels within a more general structural perspective.

How many levels?

Having said that it is difficult for most of us to sense the complexity of design language structure, I would also state that it is not easy either to say how many levels should be set up in order to explain the way that structure can be organised. In the case of natural language it can be organised, according to Crystal, in simple models of: 2-level structure (morphology; semantics); 3-level structure (phonology; syntax; semantics); 4-level structure (phonetics, phonology; syntax; semantics); 5-level structure (phonetics, phonology; syntax, lexicon; and context); and a 6-level structure (phonetics, phonology; morphology, syntax; lexicon; and discourse).

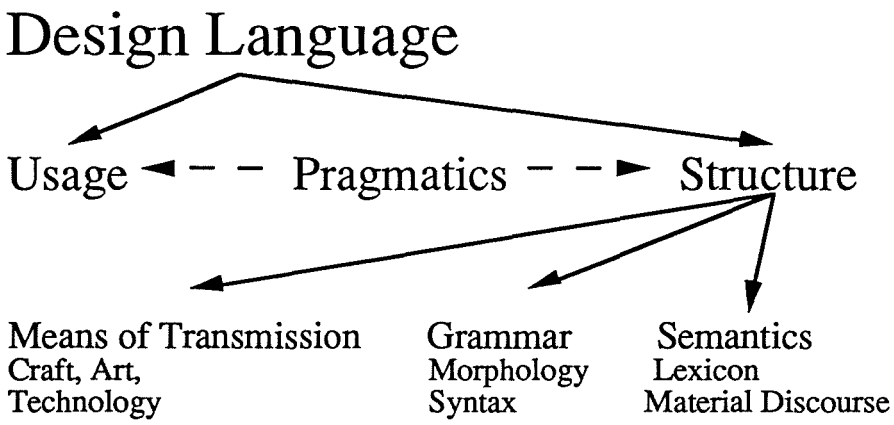
Considering that in Design Language we do not have the study of phonology[31], the natural language structure level models which sound most suitable to the case of design language would be: the 2-level structure model considering in it 'form'(morphology) and 'information'(semantics), according to some of the interviewees in Chapter III; and the 3-level structure model, considering in it lexicon, syntax and media, according to Bruce Archer. However, if we put together these ideas about design language we will have a 5-level structure model composed by: morphology, syntax; lexicon, semantics, and media. But as in this 5-level design language structure model there is no distinction between 'notions' and 'levels', and lacks of some other basic aspects that I would like to consider in the design language structure, I opted for adapting the 6-level natural language structure model suggested by David Crystal[32], which, to me, fulfil the wide scope of Design. Crystal's model uses three basic notions: medium of transmission, grammar and semantics. Each containing twofold division levels: phonetics and phonology; morphology and syntax; lexicon and discourse, respectively. Crystal's model also incorporates the dimension of language *in use*, which is related to the concerns of language

[31] Considering that Phonology is the study of the sound system of a language, this article by Jayesh PANCHAL, *Product Perception through Sound*, **ABHIKALPA** (Bombay: Industrial Design Centre, December 1984, n.2) pp.16-21, suggests that it is possible to recognise some products by its sound.

[32] David CRYSTAL, op.cit., p.83.

structure through the notion of *pragmatics*.

Thus, the model of Design Language suggested in this work I have also considered the dimension of design language in use, that I call 'usage', which relates to the concerns of design language structure through the notion of 'pragmatics'. I also assume that the Design Language structure model is composed of three basic notions: medium of transmission, grammar and semantics. However, instead of a 6-level model, as suggested by Crystal, this Design Language is a 7-level model because it considers three basic means of transmitting design ideas: craft, art and technology.



I have taken the Product Design report of one of my pupils'[33] first year course' exercises undertaken at the *Curso de Desenho Industrial da Universidade Federal de Pernambuco*, to exemplify how I see the structure of the study of the systematic use of elements of the design language for recording, devising, assessing and expressing design ideas.

Usage

Let us suppose a new proposal for a thermos flask to contain coffee to be served during the meals which keeps the liquid hot, and maintaining its taste and aroma. That product was designed especially for the Recife cultural context because most people in that city have the habit of drinking coffee during and after meals, and several times between meals. So we can start writing down the first characteristic of the design in study: it belongs to the Design branch or category

[33] Juan R. C. MOREIRA, **Café Sempre Quente**(Recife: IDC/UFPE, 1987)

Product Design.[34] That product introduces some new features e.g. new use of materials, new finishing, new techniques of production, and it is supposed to be addressed to the large majority of Recife's population, therefore it requires to be mass produced and by modern and highly mechanised industry. Thus we can give to it its second classification: it belongs to Product Design's career or specialisation: *Industrial Design.*[35]

Having said that we can now deduce that the approaches used to conceive this industrial product, were based on methodologies specifically developed to design industrial products, because when we talk about mass produced goods, we talk about costs, time, discipline, efficiency, marketing, high amount of money invested and so on. And indeed this is how it was approached.[36] So, the **Usage** notion is about the study of: (i) design categories, (ii) design careers; and (iii) appropriateness of design methods used within certain cultural contexts.

Pragmatics

Considering that throughout any design process a designer has to deal with a great deal of information, data, specifications etc., from many different fields of knowledge, it is possible to state that a communication process runs in parallel with the design process. Making another analogy between these two process, I also assume that in the design process there are three basic dimensions to which one can correlate three specific functions: structural, informative and connotative:

Structural function is regarded as the designer's capacity to foresee the whole sequence of his creation (analogous to his capacity to forecast a whole sequence of words in a sentence). To act in this way a designer has as a basis, the whole body of previous knowledge acquired about how things are brought about and how to do them. And this is what enables him to communicate his ideas, whole and in part, in such a manner that the 'signs' transmitted by him make sense to others.

Informative function takes into account what it is being expressed

---

[34] In the expression **Product Design**, the term **product** is not understood as the result of some natural process, a result or consequence. It is understood as something produced by effort with hands, tools, or machinery.

[35] In the expression **Industrial Design**, the word **industrial** is of, relating to, or derived from fully mechanised industries.

[36] Juan in his first product design project used basically two design methodologies:

Gui BONSIEPE et alii, **Metodologia Experimental: Desenho Industrial** (Brasília: CNPq/ Coordenação Editorial, 1984); and

Gustavo A. BOMFIM et alii, **Fundamentos de uma metodologia para desenvolvimento de projetos** (Rio de Janeiro: COPPE/UFRJ, 1977).

by a designer's ideas. That is to say, the relation between the 'signs' which he is using in order to express and achieve an intended purpose. Here it is very important for a designer to be aware and have knowledge of how to transmit his 'signs' in a determined way so that others can understand his ideas, because if the people who are involved with his project do not have knowledge of the way he expresses his ideas, the design process is broken down and all communication is misunderstood. That is the reason why designers are usually taught codes, rules and regulations - previously systematised, conventionalised and widely accepted - to represent and realise their creation.

Connotative Function which I define as the one which reveals a designer's characteristics and background, rather than the creation itself. For example, resorting again to the natural language, there are words like good, desirable, pleasant, unpleasant, beautiful which are linked much more to the person who uses them because their meaning varies greatly among people. When a person uses one of these words he wants to identify himself in his oral or written message. However, if he does not exercise due care in using any of those words, in certain contexts, then its communicative intention will be misunderstood. In the natural language, words like those are not related to the 'receiver' which can be a person, a community or a society. Words like those are related only to the 'sender' responsible for the emission of the 'signs', i.e. concerned only with the sender's personality, knowledge and skills.

In the specific case of design language, I consider 'Pragmatics' alongside the studies undertaken to analyse the factors influencing a designer's choice of elements to develop and express his creation and the effects of his choice on the material culture. That is to say 'Pragmatics' can be to investigate the knowledge and abilities of designers that will have a major effect upon their performance; such factors as cognition, memory, evaluation, and creativity. A designer can imagine anything he wants, but in practice he follows a large of number of rules, most of them unconsciously, that constrain the way in which he define the styles

of his designs.[37]

Coming back to the industrial product design which I am using to exemplify all this, it is possible to identify in it some of these factors which had guided the designer's choice of signs to communicate his idea. For example, let us take this passage in Juan's report about his project:- "Having as a basis my direct observations, talks with users, analysis of existing similar products, and my own vision of the problem and of the product itself, I could give abstract marks to each one of these aspects and to set up a pie chart which shows each one of these aspects translated into the following items: functionality, maintenance, aesthetics, material, ergonomics, production and cost... To define my thermos flask's shape, I took into consideration the following factors: my aesthetic sensibility and visual perception to choose the basic geometric figures; the relationship between surface and volume in solids resulted from these geometric shapes; and the kinetics balance in the interior of these solids."[38] As we can see, from there it is possible to note that there are too many aspects to be considered to be studied and analysed about a designer's choice of using this or that kind of design language to represent his ideas.

Structure

Structure is the system of internal or external elements, which derive their meanings from the relations that hold between them; and the sequential pattern of 'design linguistics' elements. The Design Language structure is composed of three parts: *Semantics; Grammar*

[37] There are already in Brazil, the United States, Europe and India essays stressing on the plurality of the design styles and taste. See for example:

(i) Lia Monica ROSSI, *Design e Gosto*, **Design & Interiores**(Dez.1989 nº17) p.124;

(ii) Jochen GROS, *Reporting Progress Through Product Language*, **INNOVATION**, Vol.3, No.2, 1984 (Ohio: The Journal of the Industrial Designers Society of America-IDSA) pp.10-1;

(iii) Uri FRIEDLAENDER. *An Historical Perspective of the New Wave in Design*, **INNOVATION**, Vol.3, No.2, 1984, op.cit., pp.12-5;

(iv) Michael McCOY, *Defining a New Functionalism in Design*, **INNOVATION**, Vol.3, No.2, 1984, op.cit., pp16-20;

(v) Rovi POOVAIAH, *Visual Characteristics Through Major Moviments in the History of Graphic Deisgn.* In **IDC 20 Years: Selected Papers IDC, Faculty on Design** (Bombay: Industrial Design Centre/ Indian Institute of Technology, Dec.1989) pp.69-78;

(vi) Gui BONSIEPE, *Bad Taste, Good Taste, Distaste.* In Kirti TRIVEDI, **Readings from Ulm: Selected articles from the Journal of the Ulm School of Design***(Bombay: Industrial Design Centre, December 1989) pp.223-28. *Published in the occasion of the International Seminar "Design Education: Ulm and After", held at the Industrial Design Centre-IIT, Bombay, India, December 1989.

[38] Juan. R.C. MOREIRA , op,cit., pp.20-6.

and Means of Transmission. By Semantics I mean the study of relationships between the elements of design language and what they represent for the social group in the study. By Grammar I mean the study of the hierarchy, composition, and configuration of the parts and expressions (analogous with sentences in natural language) which compose designer's material discourse (analogous with written or oral discourse) towards places, products, and messages. And by Means of Transmission I refer the study of the means by which a designer's material discourse can be realised or transmitted, shown, spread, built and so on.

Semantics

Design Language Semantics is a twofold level divided:

(i)*Lexicon* - the study of the design language vocabulary especially in dictionary form; and

(ii) *Material Discourse* - the study and analysis of any designer's creation towards the material culture. That is to say, considering that in Linguistics, 'discourse' means the continuous stretch of language, longer than a sentence, or a unit of text or speech used by linguists for the analysis of linguistic phenomena, I have considered *material discourse* as the level of design language which is committed with the final formal[39] results of a designer's work, whether for a place, an object, or a message, in a certain environment, historical time, and cultural context.

Lexicon Level

"Designers will never have a dictionary or grammar for their field."[40] As far I am concerned I do not agree with that statement. On the contrary, I think that due to the infinite design language lexicon, it would be easier to assume that it will never be systematised. What we must have in mind is that we can not understand design language lexicon as a traditional natural language dictionary, companion or encyclopaedia. We have to think that design language lexicon can be systematised in specific reference books that list the signs, symbols, patterns, forms etc., used to materialise and realise a creation from one of the categories, careers or specialisations specific design practice. And

[39] See for example :Uday ATHAVANKAR, *Structure Form : A series based on perception and information processing*, **ABHIKALPA 1,2,3** (Bombay: Industrial Design Centre, January 1984; December 1984; and December 1986) pp.7-10; pp.22-35; and pp.26-35 respectivelly.

[40] Stefan LENGUEL & Attila BRUCKNER, *Tracking the eye movement as a key to semantic analysis.* **INNOVATION**, Vol.3, No.2, 1984 (Ohio: The Journal of the Industrial Designers Society of America-IDSA) p.27.

these kinds of books should be organised in such a way that one can understand the richness of patterns, forms etc. It is possible to get this from the use of simple design language elements.

There are nowadays some books, like those from the Victoria & Albert Museum, which already show a variety of Islamic, Indian, Japanese patterns; William Morris' wallpapers patterns; chairs' styles and so on.[41] But I would say that these books are not really 'dictionaries', because they do not follow some basic lexicographic rules[42] e.g. along with the illustrations there is no systematic information about its source, history, meaning and usage. It is obvious that at the lexicon level we must also include the dictionaries of designers, design technical terms, design history, design movements etc. To exemplify how I think the *Lexicon Level* must be organised, let us turn once again to Juan's industrial product design report.

According to Gui Bonsiepe[43] a design problem is well defined when its variables are closed, and ill defined when its variables are open. In short and simply, what he meant was that the basic elements of any design problem have three aspects: design initial situation, design final situation, and the processes of transformation from initial to final situation, that is to say: the methods, techniques and tools used by a designer during the development of his project. And following this approach Juan defined his design initial situation based on his direct observations and the complaints of the thermos flasks users. Then he formulated his design brief with requirements: (i) the design should keep the coffee aroma, taste and temperature; and (ii) the design should have a volume to contain enough coffee to be served during a meal to five people. Evidently, in Recife's market there were many different kinds of craft and industrial products to keep coffee that, in one way or another, attended to those requirements. However, he needed to check and analyse the quality of those products' features (e.g. efficiency, maintenance, autonomy, cost, technology and durability) in order to establish his design approach parameters. So he had the opportunity to collect a lot of information and illustrations, not only through local

[41] There is an interesting article about the analytical process of useful forms when an advertising campaign is to be planned, which I would also include in the lexicon level:
Gui BONSIEPE, *Semantic Analysis.* In Kirti TRIVEDI, **Readings from Ulm: Selected articles from the Journal of the Ulm School of Design**, op cit., pp.223-28.

[42] See, for example: C.K. OGDEN, **The Basic Dictionary** (London: Kegan Paul, 1932).

[43] See Gui BONSIEPE, **Vivissecção do Desenho Industrial.** Tradução de A. Guida Neto de um artigo publicado na INTEC nº2, Julho de 1972 (Santiago do Chile : Comitê de Investigações Tecnológicas.) Note. This article was also published in Gui BONSIEPE. **Diseño Industrial, Artefacto y Proyecto.**(Madri: Alberto Corazon, 1975) pp.139-66.

market, but in museums as well (as referred to in English Art and Design Departments: Critical, Historical and Contextual Studies) of thermos flasks, and synonymous and interconnected products like tea-pots, percolators, coffee-machines, electric kettles etc. With such an amount of material and information, he could have started the first Recife's design language dictionary: *The Dictionary of Thermos Flasks Form and Function, their analogous, synonymous and interconnected craft and industrial products.*

Material Discourse Level

The term 'semantics' did not come to be widely used until the 20th century, but the subject it represents is very old, reaching back to Plato and Aristotle, and attracting the special interest of philosophers, logicians, and, nowadays, linguists and designers. In an important early book on the subject,[44] 16 different meanings of the words 'mean / meaning' were presented and distinguished. Taking the John Heskett's phrase, we can do the same with the words 'design / designer/ designs':

"*Design means designers design designs by means of designs*".

According to Heskett "the noun 'designers' refers to individuals or groups engaged in the activity, whose background, talent and achievement needs to be described and understood. The verb 'to design' describes an action or process, implying a development or sequence of thought and practice through which industrial designers create and evolve a concept for later production. The sentence also contains three usages of 'design' as a noun. The first word describes the total activity in an all embracing and undifferentiated sense, as in 'Design is an essential ingredient in successful industrial performance!'. The final words refer to a concept or plan, the end or result of a design process, e.g. 'The completed design was ready for production'. As used following the verb, however, 'design' describes the realized object after the process of production, e.g. 'Like all great designs, the Mini became the symbol of an entire generation."[45]

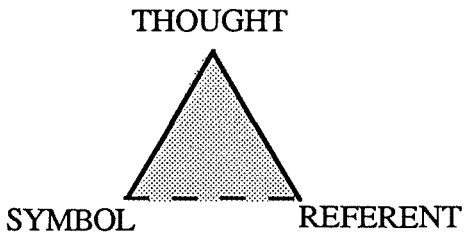
If in the field of natural language 'design' has its problems, or richness of meanings, in the field of design language itself these problems increase and become much more complex.

According to Crystal one of the best known formulations about the

[44] See C.K. OGDEN & I.A. RICHARDS, **The Meaning of Meaning** (London: Routledge and Kegan Paul, 1923) p.99.

[45] John HESKETT, *Industrial Design*. In Hazel CONWAY (Ed.) **Design History: a students' handbook** (London: Allen & Unwin, 1987) pp.112-3.

conceptions of meaning is the 'semiotic triangle'[46] of Ogden and Richards:



The main criticisms of this approach is the insuperable difficulty of identifying 'concepts'. As we saw in Chapter II, in the section regarding design connotations, the concept underlying a word such as *design* is no easier to define than the 'thing' referred to by *design.* Some words do not have meanings that are easy to conceptualise, and we certainly do not have neat visual images corresponding to every word we say. Nor is there any guarantee that a concept which might come to my mind when I use the word *design* is going to be the same as the one you, the reader, might bring to mind.

The Ogden and Richards' semiotic triangle has also been used to explore the symbolic qualities of form in industrial product designs. "Traditional semantic theory distinguishes between sign, referent and thought: that is between something that is intended to represent, something that is represented thereby and someone who makes the connection... product semantics poses several challenges to these traditional distinctions. An object's form says : first, something about the object itself; second, something about the larger context of its use; and both to the user who interacts with it and develops the conceptual connection. An object's form does not say what it is. Rather, the object is what it says to the user."[47]

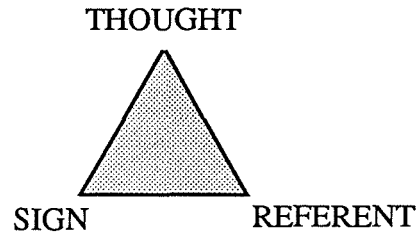
Therefore, to Krippendorff and Butter " in product semantics, the 'sign' and 'referent', in the semiotic triangle, becomes one, the imputed relationship largely disappears, and the remaining links between the object and its user form a circle: the user manipulates the object, and receives feedback though the consequences of those actions, leading to further manipulations and so forth. In this ongoing process, the user and the object finally adjust to each other, cognitively and behaviorally."[48] Thus the Ogden and Richards' semiotic triangle has this configuration,

[46] C.K. OGDEN & I.A. RICHARDS, **The Meaning of Meaning**, op.cit., p.99.

[47] Klaus KRIPPENDORF & Reinhart BUTTER, *Product Semantics: exploring the symbolic qualities of form*, **INNOVATION**, Vol.3, No.2, 1984 pp.4-9.

[48] Ibidem, p.4.

as suggested by Krippendorf and Butter in the case of product form semantics:



These same two authors define 'Product Semantics' as the "study of the symbolic qualities of man-made forms in the context of their use and the application of this knowledge to industrial design. It takes into account not only the physical and physiological functions, but the psychological, social and cultural context, which we call the symbolic environment."[49] As in this work, I regard 'design' not only as industrial products, but also with places and messages, just to introduce preliminarily, I would widen that definition changing it to : "Designers' material discourse semantics is the study of the symbolic qualities of man-made forms in the context of their use and the application of this knowledge to environmental, product and communication design..."

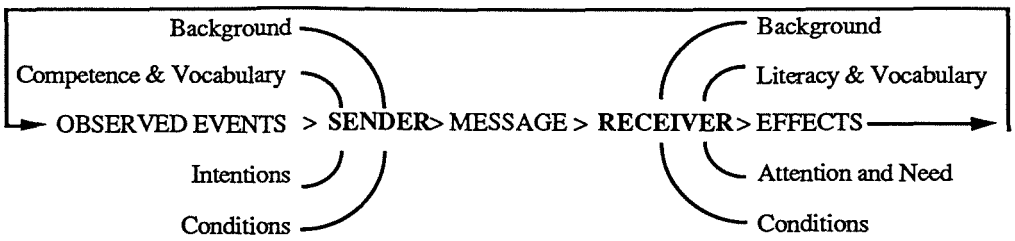
Krippendorff and Butter also adapt a communication process model[50] to develop another model which they call industrial "product semantics in the design and use of artifacts."[51] I think that it is opportune to reproduce here the original model of the communication process used by them, in order to use it as the starting point in any further discussion on designer's material discourse.

Krippendorf and Butter give us, and to Brazilian design educators in particular, very important advice in terms of design language semantics: "All man-made forms have socio-cultural histories, elaborate existing archetypes, and are loaded with social meanings that place them in the symbolic context of use".

[49] Ibidem.

[50] Ibidem, p.5.

[51] Ibidem, p.6.



Grammar

We already know that in Brazil there is no course to train design teachers. Amongst the many problems brought about by that situation, I would like to remark on one: the lack of development and documentation of teaching design methods. Any empirical teaching method developed by a teacher is very likely to last as long that teacher is in charge of the discipline. And it is also likely that his method will be kept without any change or improvement year-after-year.

Having said that, it is very true that when I started teaching design in 1983, I did not have any kind of professional experience in teaching, and any pedagogical design model to follow. Nevertheless when the exact moment to give classes arrived, I decided that I should adopt any of my former teachers' teaching methods, just to reduce the risks and failures of my new experience, even though I knew that most of teaching methods available were dry, boring, and frustrating.

For instance, when I was a design student (1977-1980) I found one of my undergraduate course discipline very dry: the teacher stood in front of the green board, making technical drawings and explaining orally the form and function, and general features of what he used to call "machines' elements" e.g. nuts, screws, threads, rebids, pins, springs and so on. Ironically, similar discipline was the first I had to teach at the CDI/UFPE. And even more ironically, I did not have any other method to use except that same teacher's method. I failed!

Nevertheless, soon I realised that things in the classroom and pedagogic methods are as Prof.Carmelo Di Bartolo used to say, in a state of permanent 'precarious equilibrium': "In every kind of school, the teaching has to strike a precarious equilibrium, and remain open to those changes and adjustments which may be indicated by time and experience (its own and others')... Nothing can be defined, when equilibrium arrives at its maximum, it fails."[52] And so it was! I changed the whole teaching method procedures.

[52] Carmelo Di BARTOLO, *Didactics and Reseach*, **Design Come** (Milano: Institute Europeo di Design, 1983, n.2) p.19.

I suggested to the students to bring to the classroom old, broken and out of order industrial products (TV sets, telephones, electric irons amongst other), in order that they 'dissect', explore and classify the material, size, technology etc., of each product's element, part and component. At that time, everything was made empirically, intuitively.[53] However, presently, considering the natural language grammar teaching classification suggested by Crystal, my teaching method could be classified as a modern exercise of design language grammar, which characteristic are: "discover first, and define the terms last."[54]

It is difficult to capture the central role played by design grammar in the structure of design language, other than by using a metaphor such as 'framework'. But, as Crystal says, 'no physical metaphor can express satisfactorily the multifarious kinds of formal patterning and abstract relationships that are brought to light in grammatical analysis'.

Two steps can usually be distinguished in the study of design language grammar. The first step is to identify the units present in any design. The second step is to analyse the patterns into which those units fall, and the relationship of meaning that these patterns convey.

One of the commun approaches is to begin by recognising the parts, the components, and then the style of designer's expressions. The objective is to study the combination between design language syntax and morphological levels.

"Ever since the foundation course of the Bauhaus - a preparatory course in basic design - has been a standard part of the curriculum of most art and design schools in the world. The objectives of these basic design courses[55] are generally stated as providing the student with a 'grammar' of form - giving a 'vocabulary' or 'alphabet' of form which could be used to create 'words' and 'texts' in later real assignments. The assignments typically revolve around pure formal explorations and skills training."[56] And with regard to this it is what Bonsiepe says: "One of the great innovations in modern education...The intention of this innovation can be summarised as providing the students with general design tools for handling specific design tasks later on... Emphasis has been laid on syntax training, isolating aesthetic phenomena and dealing with them in so-called non-applied exercises or assignments: studies in

[53] I reported that teaching method in my MSc dissertation , **A Criatividade na Orientação Educacional dos Desenhistas Industriais**, pp.39-52.

[54] David CRYSTAL, op,cit.,p89.

[55] See for example: Naomi ASAKURA, *Kohsei:basic art and design course as a new professional centre.* **ABHIKALPA** (Bombay: Industrial Design Centre, December 1986) pp.4-9.

[56] Kirti TRAVEDI, *Understanding Basic Design.* **ABHIKALPA** (Bombay: Industrial Design Centre, december, 1986) p.1.

colour, textures, compositions, surface, transformation, grids etc."[57]

So it is very important that from these studies on design language grammar we can work out reports and books on:

(i) Descriptive Design Grammar - an approach that describes the grammatical constructions that are used in design language, without any evaluative judgment about their standing in society;

(ii) Pedagogical Design Grammar - reports specifically designed for teaching a specific aspect of design language usage, or for developing an awareness of the design language as a whole;

(iii) Prescriptive Design Grammar - A manual that focuses on constructions where usage is divided, and lays dawn rules governing the coherent cultural use of design language;

(iv) Theoretical Design Grammar - an approach that goes beyond the study of specific fields of design language usage, to determine what constructs are needed in order to do any kind of design 'grammatical' analysis, and how these can be applied consistently in the investigation of human ability to deal with design language.

Morphology Level

This level studies the structure of all the aspects which compose a design. In my opinion, the morphological level is the one which needs to be stressed at the beginning of education in design. It enables students to express and build their ideas. Like words in a sentence - the complete expression of a single thought - which can be divided into parts, each of which has some kind of independent meaning, any design can also be divided into parts, components and expressions, until we reach the simplest morphological aspect which I would also call 'grapheme'.

Grapheme is the smallest unit in a writing system capable of causing a contrast in meaning. For example in the English alphabet, the switch from cat to bat introduces a meaning change; therefore 'c' and 'b' represent different graphemes. So, in written language, graphemes[58] are the signs (letters) which represent a phoneme and compose an alphabet. And, in the notion of graphemes the various marks of punctuation, and such special symbols, as '@', '&' and '£', are also included.

Nevertheless, in written language a 'grapheme' is perceived as a

---

[57] Gui BONSIEPE, *On Golden Things and Other Meanings.* **ABHIKALPA** (Bombay: Industrial Design Centre, December , 1986) pp.21-3.

[58] **graphemes** - the term 'graphology' was coined on an analogy with 'phonology', and several phonological notions used in the study of speech have also been applied to the study of written language. In particular, the idea of 'grapheme' has been developed, analogous to 'phoneme'.

single configuration, or Gestalt,[59] and not as a set of lines and dots; but it is nonetheless possible to analyse the shapes into their components to determine what the salient parameters of contrast are - curve vs. straight line, presence vs. absence of dot, left-facing vs. right-facing curves, and so on. Graphemes are abstract units, which may adopt a variety of forms. The grapheme 'a', for example, may appear as A, a, **a**, *a* , or in other forms, depending on the handwriting style or typeface chosen. There is a vast amount of physical variation in the shapes of graphs that does not affect the underlying identity of the grapheme. Whether a word is printed cat, CAT, cat, or even caT or cAT, we still recognise it as a sequence of three graphemes 'c', 'a', 't'.

In the case of design language there is only one grapheme the dot '.'. And the dot is the base for for building the lower limit of design language grammatical enquiry: the **Geometrical Point**, which I also consider the only morpheme[60] existing in the design language alphabet. The geometrical point is used to build design language expressions.[61] **Expressions** (line, shape, form, tone, etc.) are used to represent the design components. **Components** are used to arrange the parts of a design. And **Parts** are used to build the **Project**. Thus, a project can be analysed into parts; the parts into components; the components into expressions, and; expressions into the ways in which geometrical points are arranged on a surface or screen.

According Ravi Poovaiah the study of these principles for visual representation "lends awareness of the extent of their possibilities and limitations and can act as a framework for understanding the basis of visual knowledge. Also we learn more about the visual through changes and transitions than through single images."[62]

Johannes Itten says that "exercises in composition and abstract forms serve in the improvement of thinking and at the same time the study of new means of representation."[63]

---

[59] **Gestalt** , the German word for 'configuration, form, pattern', adopted as the term for a school of psychology associated with the names of Wertheimer, Köhler, and Koffka, which came to prominence in the first half of the 20th-century. Its basic principle that the ultimate elements of experience are structures and organisations, which can not be broken down into 'atomic' components was not entirely new or original but was supported with more systematic experimental research than hitherto.

[60] **morphemes** , are the lower limit of grammatical enquiry.

[61] See for example: A.G.RAO, *Expression as Basis of New Form in Industrial Design.* **ABHIKALPA** (Bombay: Industrial Design Centre, January, 1984) pp.2-6.

[62] Ravi POOVAIAH, *Notes on Visual Relation.* **ABHIKALPA** (Bombay: IDC, Dec.1986) p.14.

[63] Johannes Itten, **Design and Form** (London: Thames&Hudson, 1975, Revised Ed.)p.62.

Syntax Level

Some of my CDI/UFPE colleagues who thought that there is only a limited period in the design process where a designer needs to be creative (e.g. during the 'design concepts phase' - M.Asimow; and the 'development of ideas' - B.Archer), reacted against my MSc dissertation where I made analogies between the creative process and the design process, and because I also assumed that a designer needs to use his creative thinking from the very first moment he meets a 'design' situation.

Now I would state that in parallel to the design process, there runs not only the creative process but also the communicative one. And because of the similarities between the design and creative processes I assume that the range and complexity in which design ability is connected with the human being's physical and psychological features, Design has more to do with procedures which aim at objectives that cannot be defined with precision (heuristic) rather than procedures based on techniques which prescribe how to achieve a precise aim (algorithm).

Therefore, I think that, in contrast with the spoken and written language, we can not have a precise syntax for the use of design expressions. However, this is a very important field which requires further research and study. I would say that the way in which design language expressions (points, lines, shapes, forms, tones, colours etc.) are arranged to show relationships of their meanings within, and sometimes between, projects, is what has characterised the craft, art and design movements throughout time. And, it is exactly the break down of the design language syntactic rules which govern those movements, which gives birth to another.

Thus, I think that the design language *syntax level* are concerned with the study of the expressions which have characterised art and design movements throughout time; and to give room for students to learn how to break down the way in which those design expressions were being arranged and developed, creating so, a new design language syntax, as was suggested by the Japanese designer Syuya Kaneko.

"Design must be the act of dismantling the sign, that is 'de-signo'. A designer has to be a little devil whose function is to undo and dismantle everything; and to redo everything starting from a different logic. That is to say, when a designer sees an object and has perceived it as flat, long and horizontal, he has to have the immediate will to change it to being bent, short and vertical."[64]

However, syntax can be also field of study aimed to analyse the way

[64] Based on the Interview # 2211

and sequence in which design methodologies have been proposed, how the design process can be carried out, and, most of all, at pedagogical level, design syntax, specially for the design teachers, can be the level which is dedicated studying the means in which design expressions can be introduced and taught on basic design courses.

For example, adapting the words of Leonardo da Vinci to the case of a design course, we have: "The first principle of the science of painting is the point, then comes the line, then the surface and then the body bounded by a given surface... The second principle... is the shadow of the body which it represents. We shall give the principles of this shadow, and proceed to show how shadow gives sculptural relief to the surface... includes all the colours of surfaces, and the forms of the bodies bounded by them, as well as their nearness and distance... This science is the mother of perspective, or visual lines... The young man should first learn perspective, then the proportions of all objects... Next, copy work after the hand of a good master, to gain the habit of drawing parts of the body well; and then work from nature, to confirm the lessons learned... View for a time works from the hands of various masters. Then form the habit of putting into practice and working what has been learned."[65]

This can be a very useful way to start. Some professors at the Architectural Association in London introduce their students in basic design rightly to three-dimensional modelling exercises, without any sort of theory or previous exercises in visual graphic expressions or architectural modelling. That is to say, from a simple idea students start working on their imagined designs towards the environment. And, amazingly this approach also works.

Means of Transmission

Craft, Art & Technology Levels

Since 1984 Her Majesty's Inspectorate has published a number of Curriculum Matters papers designed to stimulate discussion about the curriculum as a whole and its components parts. These papers intend to stimulate a professional debate and to contribute to reaching a national agreement about the objectives and content of school curriculum. That debate has now on the announcement of the British Government's intention to legislate to establish a national curriculum .

[65] LEONARDO da Vinci, **Treatise on Painting** [Codex Urbinas Latinus, 1270]. Translated and Annoted by A. Philip McMahon (Princeton: Princeton University Press, 1956) p.4 and p.45.

The "Craft, Design and Technology from 5 to 16"[66] paper is intended to contribute to national deliberations by drawing together professional and lay opinion and feeding into the work of the National Curriculum Council and its working groups. It is also intended to contribute to an on-going professional debate about the nature of education in Craft, Design and Technology - CDT.[67] "Although the title CDT may suggest three separate activities, all are constantly interwoven; so that, for example, craft skills are learnt and practised in response to the demands of a particular design or to the choice of a certain technology."[68] And the purpose of CDT is to enable pupils to be inventive in designing practical solutions to problems and so bring about change and improvements in existing situations. In CDT ideas are conceived, developed, modified and given shape in artefacts through which the original ideas can then be evaluated.

According to the British National Curriculum Council "design involves defining a task, deciding on how the task is to be done and responding to the consequences of thoughts and actions both as they happen and later when the result is judged. It is directed towards products and systems (a set of objects or activities which perform a task) which are made or effected to meet a specified requirement... Many of the decisions made when developing a design, a plan of action, will depend upon the pupils' own knowledge and experience of what is possible. Gradually they acquire more of the accumulated knowledge and experience gained over the centuries as people have sought to change and improve their lives and build it into their own decision-making process."[69]

And it is the application of this knowledge and experience which the National Curriculum Council considers that may be taken as a convenient definition of **technology**. "It is concerned with controlling things or making things work better. Children's early attempts of using or re-arranging materials to make things are within that tradition, as is

---

[66] Her Majesty's Inspectorate(HMI)Series, **Curriculum Matters 9 : Craft, Design and Technology from 5 to 16** (London: Her Majesty's Stationary Office - HMSO, 1987).

[67] In Britain there is a considerable number of books, papers, articles and journals about that matter. See for example: (i)John LANCASTER (Ed.), **Art, Craft and Design in the Primary School** (Corsham: National Society for Education of Art and Design -NSEAD, 1987 2nd. Edition);

(ii) Stewart DUNN, **Craft, Design and Technology**. (London: Unwin Hyman,1986);

(iii) The Design Council magazines : **The Big Paper**(primary level) ; **Designing**(secondary level) and **D** (tertiatiary level).

[68] Her Majesty's Inspectorate(HMI)Series, **Curriculum Matters 9: Craft, Design and Technology from 5 to 16**, op.cit.,p.2.

[69] Ibidem, p.1

their increasing ability to succeed in putting their ideas into practice." [70] And this is what Bruce Archer calls "the study of knowledge and skills available in a society which make possible things be brought about"; and, according to Joaquim Redig, which must include the study of the available *natural resources* (raw-materials), *technical resources*(production means), and *human resources*(human skills and knowledge)."[71]

We also have **craft** which "is the means through which designs are transformed into artefacts. Through a proper concern for craftsmanship, people make things which not only work well but which also look and feel attractive. Craft skills need to be acquired because, without them, pupils can become frustrated by their inability to produce that which, in their imagination, works perfectly and looks and feels pleasing. Yet in striving to give pupils a mastery of craft skills, schools have sometimes deadened pupils' interest by concentrating on a narrow range of materials, a number of traditional techniques and a great many repetitive and circumscribed processes"[72], learning of skills devoid of creative design and out of a meaningful context. And this, according to Bruce Archer, is 'wrighting': the study of knowing how things can be done and made, and this means the techniques and skills for modelling two- and three-dimensionally.

"In addition, CDT makes use of skills and knowledge acquired in other subject contexts particularly art, mathematics and science. Work in art, for example, provides experience in the use of colour, line, form, shape, texture and spacial arrangement. From mathematics comes increasing facility in simple computation, experience of a variety of graphical representations, an awareness of the use of space through geometry, trigonometry and the making of three-dimensional models. Science lessons develop growing understanding of the nature of energy and the effect of forces acting on natural and man-made materials , for example, through the use of levers. CDT provides a context for such learning by fostering motivation, by drawing on subject knowledge and skills, and by making other subjects more meaningful through demonstrating how they may be applied." [73]

It is worth remembering of **art.** Without 'art' design education is incomplete. The aesthetic and creative development of the students is fundamentally required. "This area is concerned with the capacity to respond emotionally and intellectually to sensory experience; the

[70] Ibidem .

[71] According to Joaquim REDIG, Sentido do Design , op.cit.,p.78.

[72] Her Majesty's Inspectorate(HMI)Series, Curriculum Matters 9..., op.cit. p.2.

[73] Ibidem.

awareness of degrees of quality; and the appreciation of beauty and fitness for purpose. It involves the exploration and understanding of feeling and the processes of making, composing, and inventing. Aesthetic and creative experience may occur in any part of the curriculum, but some subjects contribute particularly to the development of pupils's aesthetic awareness and understanding because they call for personal, imaginative, affective and often practical, responses to sensory experience. Art, craft, design, some aspects of technology, music, dance, drama and theatre arts, in particular, promote the development of the imagination and the creative use of media and materials..."[74] I think that here is the secret for good design teaching and learning.

Nevertheless considering that the new Brazilian design curriculum was planned towards a supposedly known world outside the school, the professional design practice world, without having considered:

(i) that, according to Eisner, a design "curriculum planning begins with the student; and it is therefore crucial for the teacher to have as deep an understanding as possible of the individual student's character, cultural background and environment" i.e. student centred design education rather than problem centred design training;

(ii) that in curriculum matters, "you start from where the student is"[75]; it is time for us Brazilian design educators to start thinking of ways to evaluate what have been proposed in the Brazilian national design curriculum and change or adapt what was suggested improperly. And this will be the core of the next Chapter: the Design Language structure model as a basis for UFPE design curriculum evaluation.

[74] Ibidem, p.17.

[75] Adapted from John LANCASTER (Ed.), **Art, Craft and Design in the Primary School** (Corsham: National Society for Education of Art and Design - NSEAD, 1987 2nd. Edition) p.26.

CHAPTER V

A DESIGN LANGUAGE STRUCTURAL MODEL AS A BASIS FOR DESIGN CURRICULUM EVALUATION

An adesign education

When I went to Brazil in July 1989 for the interviews presented in Chapter III, I had the opportunity to meet Prof.Eloá Barbuda F. Chaves, an eminent Brazilian expert in the field of Applied Linguistics. Prof.Chaves has successfully developed and applied a methodology known as ALOE[1] in order to improve the oral and written language of Brazilian children and adults who have some degree of ***dyslexia***. ALOE methodology is the result of Prof.Chaves' thirteen years of research and experience with the teaching of the Portuguese language.

According to Prof.Chaves the Brazilian educational policy and acts[2] from the period 1964-1975, did not always bring about successful reforms for the teaching of the Portuguese language. And this is the reason why, in the book *Para melhor ler, escrever e falar*[3] (Towards a better reading, writing and speaking), she says that ALOE methodology is also a fruit of "suffering...facing a reality which I did not accept, and

[1] **ALOE** - *Aprimoramento da Linguagem Oral e Escrita* (Improvement of the Oral and Written Language). According to Prof. Eloá Barbuda F. Chaves her methodoly "ALOE" was possible to be developed due to the advises of her father; the tutorials of Prof. Antônio Houaiss; to the bibliography suggested by Prof. Serafim da Silva Netto and Prof. Celso Cunha, among others.

[2] These were the main issues of the Brazilian Educational Policy during the period of 1964-1975: (a) The new teaching legislation presented in the 1967's Brazilian Constitution;
(b) The Education Act 5540,of 1968, reforming the high-level teaching;
(c) The institutionalisation of the "Movimento Brasileiro de Alfabetização- MOBRAL" (Brazilian Literacy Campaign), in 1967, with the Decree-Acts 5379 and 62484;
(d) The Educational Act 5692, of 1971, reforming the primary and secondary teaching;
(e) The Decree-Act 71737, which institutionalise the "suplemment teaching".

[3] Eloá Barbuda F. CHAVES, **Para melhor ler, escrever e falar** (Rio de Janeiro: Série Lendo 1, Produção Independente, 1984) .

with which I did not agree - to watch the disintegration of our homeland language teaching, caused by successive reforms which ultimately ended in the unfortunate substitution of the word by little crosses, in all levels of the schooling."[4]

She was clearly referring to the process which occurs at all levels of Brazilian education in which the students are instructed to undertake school exercises and attend examinations, even those to enter the universities (Vestibular), basically the substitution of words for crosses in multiple choice exams. And this is what Prof.Chaves calls the education towards a society of 'dyslexic people'.

According to Crystal, 'dyslexia', 'alexia' or 'word blindness'[5] is "the onset of brain damage in adult life which frequently leads to a disorder of reading or writing in people who have previously been literate. The handicap is usually accompanied by aphasic symptoms affecting the spoken language; occasionally, it is the only, or predominant, symptom. In all cases, the reading disorder is referred to as 'acquired dyslexia' and the writing disorder as 'acquired dysgraphia'."[6] The 'a' prefix is also used, especially in Europe and North America referring to these two problems: 'alexia', and 'agraphia'.

The **acquired alexia** can be divided into the following types:

(i) Phonological dyslexia - people with this problem are unable to read on the basis of the phonic rules that relate graphemes to phonemes. This means that they can manage to read familiar words, but they have great difficulty, with new words (such as technical terms) or simple nonsense words.

(ii) Deep dyslexia - here too people are unable to read new or nonsense words, but in addition they make many semantic errors (e.g. reading forest as 'trees'). There are also several other types of

---

[4] Eloá Barbuda F. CHAVES, op.cit., p.11

[5] See also: (i)L.Bradley, *The organization of visual, phonological, and motor strategies in learning to read and to spell.* In V.KIRK (Ed.), **Neuropsychology of language, reading and spelling** (New York: Academic Press, 1983) pp.235-54;

(ii) F.M. Hatfield & K.E. Patterson, *Interpretations of spelling disorders in aphasia: impact of recent developments in cognitive psychology.* In F. CLIFFORD ROSE (Ed.), **Progress in aphasiology** (New York: Raven Press, 1984) pp.183-92;

(iii) H.Hecaen & P.Marcie, *Disorders of written language following right hemisphere lesions: spatial dysgraphia.* In S.J.DIMOND & J.G.BEAUMONT (Eds.), **Hemisphere function in the human brain** (London: Elek Science, 1974) pp.345-66;

(iv) P.R.HUTTENLOCHER & J. HUTTENLOCHER, *A study of children with hyperlexia,* **Neurology 23**, 1973, 1107-16;

(v) M. THOMSON, **Developmental dyslexia.** (London: Edward Arnold, 1984);

(vi) L. TARNOPOL & M. TARNOPOL, **Reading disabilities: an international perspective** (Baltimore: University Park Press, 1976).

[6] David CRYSTAL, op.cit., p.272.

difficulty, including visual errors (e.g. reading signal as 'single'), and errors that combine visual and semantic properties (e.g. reading sympathy as 'orchestra', presumably because of the link via 'symphony');

(iii) Surface dyslexia - people with this problem are very poor at recognizing words as wholes, and rely greatly on a process of sounding out the possible relationship between graphemes and phonemes.

There are also different types of acquired dysgraphia. Most works in this field have studied the disruption caused to spelling ability. Three syndromes have been proposed, analogous to those proposed for acquired alexia.[7]

There is also another kind of dyslexia which is known as **developmental dyslexia.** Also according to Crystal "since the early years of this century, it has come to be widely recognised that there are children who, after a few years at school, are consistently seen to fail at the tasks of reading, writing, and spelling, despite the normal intelligence, instruction, and opportunity to learn. No medical, cultural, or emotional reason is available to explain the discrepancy between their general intellectual and linguistic abilities and their level of achievement in handling written language. These is often a history of early language delay, but by age 9 or so, spoken language ability is apparently normal, whereas written language skills may remain at the level of a 5- or 6-year-old... These are the children who have been called 'dyslexic' though alternative labels have been devised for the condition in an attempt to escape the originally medical connotations of this term (notably 'specific reading disability' and 'learning disability').[8] The blighted school career of such children, when no-one recognises their handicap, has been well documented. Their inability to read, whether for information or pleasure, and their daily failure in their attempts at written work, has a devastating effect upon their ability and motivation to learn. There are often associated problems in coping with number symbols (in arithmetic), and is tasks requiring short-term memory, such as following instructions. Their poor writing and spelling tends to be viewed as a symptom of educational sub-normality or lack of intelligence or, if the child is known to be intelligent, leads to a charge of laziness or 'not trying', with subsequent punishment in school and increased family tension at home... As a result it is not surprising to find that many such children become anxious, withdrawn, or

[7] Compiled from D.CRYSTAL, op.cit., p.272.

[8] According to Arianna S. HUFFINGTON, "Dyslexia, which may have been the cause of Pablo's problems at school was, of course, unknown" in late 19th-century. In **Picasso, creator and destroyer** (London: Weidenfeld and Nicolson, 1988) p.23

aggressive... Career prospects, in such cases, are minimal." [9] I am quite convinced that is that kind of 'alexia' which Prof.Chaves is referring to: a mass developmental alexia caused by the chaotic Brazilian educational system.

Once, during one of our informal conversations, I asked Prof.Chaves: - "Due to the fact that the existing Brazilian Art Educaton have not been enough encouraged, and as in the Brazilian educational system we do not have Design Education in our primary and secondary schools to develop the inherent human design ability, do you think that it is possible we are also forming an adesign society?" The answer was: - "Probably!"

Considering that the first patient providing evidence of a deep dyslexia syndrome was studied by the Medical Research Council team in Oxford in the 1960's, and that it is almost certain that up to now no research has been undertaken to study people who have the **adesign syndrome**[10], that was a wise answer. That is to say, it is known that no researchers have begun to study in depth a possible new contemporary syndrome: man's apparent lack of the experience, skill and understanding which he must have regarding his appreciation and adaptation of his surroundings in the light of his material and spiritual needs.

In assuming that idea, I have formulated three ideas which certainly need developments in further researches:

(i) despite the fact that literate Brazilian people know how to read and write, they may be considered illiterate in terms of design: the educational system did not provide them with the opportunity to develop their inherent ability do design and understand design.

(ii) illiterate Brazilian people do not suffer any influence from the educational system, therefore they are likely to preserve their inherent ability of designing, and are perhaps the most favourable people to understand, deal and interact with problems concerned with the appreciation and adaptation of their own environment and material culture.

(iii) Brazilian national design curriculum do not consider the lack of design education in the basic levels of formal education. This lack of consideration causes the design curriculum to be inappropriate and cause the students to develop a certain level of developmental adesign syndrome.

With respect to the first idea, there are some points that must be considered:

---

[9] Ibidem, p.723.

[10] **a-design**, where the suffix "**a-**" is used in the sense of *against*, in opposition, as in *along* ; and in negative sense as in the words *amorphous* and *achromatic*.

(1) From the Krippendorff and Butter adopted communication process model, we can assume that for any consumer, user, addressee or whatever person to understand or perceive any product, environmental and communication design, it is necessary to consider:

(i) the cultural background of consumer, user or addressee etc.;

(ii) his/her design literacy and design vocabulary;

(iii) his/her design awareness and design needs, and:

(iv) the environment and conditions of use of consumer, user etc.

All these aspects interfere in the way messages, objects and places affect the environment and the material culture, and this by its turn, has an effect not only on society, but also on the designer's feedback when approaching other projects.

(2) Henry Cole (1802-1882) in 1853, said: "If you leave the public ignorant, the educated artisan [designer] will not be employed; but if you lead the public to feel the want of beauty and propriety - to be sensible of their presence and impatient at their absence - to distinguish between symmetry of form and disproportion... I am sure the public will soon demand good designs in manufactures, and be willing to pay for them."[11]

(3) Bruce Archer, in 1974 said: "...And since we are talking about design awareness in terms of competence not only for designers but also managers, bankers, civil servants, politicians and ordinary consumers, we are seeking the development of greater aesthetic, scientific and practical sensibility in the population as a whole."[12]

These two points seem to be precisely what happens with a large number of Brazilian designers according to a report released in 1985 in Brazil.[13] This induces us to think that the lack of design education in the basic levels of schooling is the main reason why Brazilian politicians, educationists, managers, industrialists and even ordinary consumers have not yet understood the importance of Design and designers in a contemporary society. Thus, as the Brazilian general system of education has not facilitated students to interact with and change the environment, and understand the value of their regional material culture, it is rather probable that most of literate Brazilians have lost partially their inherent ability to design and understand design, and it is likely that they are suffering from *developmental adesign* or *dysdesign*

[11] Henry COLE, First Report of the Department of Practical Art, HMSO, 1853, Selected by Bruce Holdsworth **Journal of Art and Design Education**, Vol.6, no.1 (1987), pp.85-6.

[12] L.Bruce ARCHER, **Design Awareness and Planned Creativity in Industry** (London: The Design Council, 1974) p.11.

[13] Eduardo BARROSO NETO (Ed.), **Desenho Industrial: Cadastro Nacional de Desenhistas Industriais** (Brasília: CNPq, MIC, Coordenação Editorial, 1985).

syndrome [14].

Regarding the second idea that illiterate Brazilian people, because they do not suffer any influence from the educational system, are the ones who have preserved their inherent ability of designing, and are perhaps the most favourable people to understand, deal, and interact with problems concerned their environment and material culture, the following aspects have to be considered:

(i) "In the handicraft from the Northeast the presence of the three cultures which have formed Brazilian society (European, African, and Native Indians) is clear. In the utilitarian handicraft of the Northeast Brazilian people nowadays the influence of the objects used by South American primitive inhabitants are predominant: straw baskets; clay jugs, dishes, containers; hammocks among others. In the decorative and religious handicraft the European and African cultures predominate. There is currently more and more people in Northeast dedicated to handicraft superior to that in other Brazilian regions. This is due mainly to the high figures of unemployment registered there. Handicraft, unfortunately, still is considered by Brazilian economists, politicians[15] and even designers as an inferior work, characteristic of a 'non-developed region'.[16]

(ii) The Northeast handicraft characteristics has inspired many studies and researches for economists, sociologists, historians, artists and designers.[17] From these works I would like to point out those which can be the primary sources for further considerations: Silvia Rodrigues

---

[14] **dys-design**, where "dys-" is a greek preffix which means hard, bad as in the word *dyslogical.*

[15] Carlos GARCIA, **O que é Nordeste** (São Paulo: Brasiliense, 1986 5ºEd.) p.13.

[16] Gui Bonsiepe, *On Golden Things and Other Meanings* , **ABHIKALPA**(Bombay: Industrial Design Centre, Dec.1986, pp.21-3) says : Should there exist a Noble Prize for stupidity, he (or she) who invented the arrogant and discrimininating term "developing countries", would certainly stand as a serious candidate for consideration. Nevertheless, the term, born out of a parochial perspective, continues as semantic currency in international debates and publications. The term "Third World" I do not like either; it has too many emotional overtones". p.21.

[17] In 1987 I presented a research proposal to the Brazilian CNPq entitled **A Técnica e Tecnologia em Pernambuco**(The Technique and Technology in Pernambuco), which was approved to be undertaken together with five beginner research students from the IDC/UFPE. The main objective of that research was to register the "tecniques, methods, procedures, tools, equipments and environemt which contribute to the thinking up and making the Pernambuco material culture. Nevertheless, due to the fact that I moved to London in September 1987, that research was not yet finished.

Coimbra,[18] A.A.M.Lima,[19] and Peter Eisenberg with a work that, although not directly related to handicraft, can give a broad and basic view about the cultural development in Pernambuco.

(iii) There are in Pernambuco State hundreds of cities, villages, settlements etc., where the people's main economic activity is handicraft. For instance, Caruaru, Tracunhaém, Aguas Belas, Paulista, Goiana, Olinda, Abreu e Lima etc. But it is not only those cities whose life is based on handicraft; Recife itself has developed a significant handicraft based on recycled industrial waste - tyres, fluorescent lamps, metal cans, etc. - which has drawn the attention of designers like Victor Papanek[20] and Gui Bonsiepe[21] among others, as well as the producers of the BBC television series *The World About Us*, which dedicated a programme, introduced by Aloísio Magalhães, exclusively to that Recife's material culture phenomenon.

All this is clear evidence that those illiterate Northeasterners have been responsible in carrying forward the Northeast material culture throughout time, and this means that they have not lost their design ability, despite the fact that they remain as sufferers of deep dyslexia, dysgraphia, and in some cases, dysphonia. Therefore it is so hard for them to understand their importance to the development of the Northeast material culture, and the real value of their craftsmanship, design and art.[22] Thus, they also remain in the lowest strata of the Brazilian social pyramid, poor, ignorant, miserable and exploited, while their handicrafts are part of some of the most valuable particular and public art collections in the country - such as the one which belongs to Recife's Town Council.

With regard to the third idea that Brazilian design students have a certain level of developmental adesign syndrome, let us see the case of the Pernambuco State. In 1988 a document was released in Pernambuco, about the present quality of design education in that State.[23] That

[18] Silvia Rodrigues COIMBRA et alii, **O Reinado da Lua : escultores populares do nordeste**.(Rio de Janeiro: Salamandra, 1980);

Silvia Rodrigues COIMBRA, **Brazilian Handicraft from Pernambuco for Export**. (Recife: Promoexport, 1978);

Silvia Rodrigues COIMBRA, **Relatório do Projeto Apoio a um Saber -Fazer** (Olinda: Governo Municipal de Olinda/CNPq, 1984)

[19] A.A.M.LIMA ,**O artesanato nordestino: características e problemática geral** (Fortaleza: Banco do Nordeste Brasileiro/ETENE, 1982).

[20] Victor PAPANEK, **Design for a real world** (London:Thames and Hudson, 1972 / StAlbans: Paladin, 1974).

[21] Gui BONSIEPE, **A Tecnologia da Tecnologia** (São Paulo: Edgar Blücher, 1983).

[22] **art** here is used in the sense of "**the skill governing a particular human activity**."

[23] Edna Lúcia Cunha LIMA. **Avaliação dos Cursos de Desenho Industrial: uma perspectiva externa**. (Recife: UFPE, 1988).

document, was actually a response from the lecturers of the UFPE Industrial and Graphic Design Courses to the Senate House which required to all its courses to propose means for evaluating their own fulfilment, and, so, give more precise data to be compared with the ones presented in a research made in 1987, which examined the quality of 4,025 different high level courses all over the country, in order to guide students towards the best university courses. From that research a book was published entitled *Guia do Estudante 88* (Student's Guide 88).[24]

The researchers of that book attributed to the university courses examined the qualification marks of *excellent, very good, good, not bad, weak*, according to interviews made which focused on the following criteria: (i) the course's teaching staff qualification; (ii) didactic resources; (iii) grants; (iv) support services for students; (v) students' satisfaction; (vi) existence of postgraduate courses; and (vii) the demands of the job market for graduate professionals.

According to the *Guia do Estudante 88*, in Pernambuco 171 high level courses were examined, of which 38 belonged to the UFPE. And so was the picture of the Pernambuco tertiary education presented: 2 courses were considered 'very good'; 31 received the mark 'good', 54 'not bad', and 84 'weak'. In the specific case of UFPE's courses not one received the mark 'excellent' or 'very good'; the Humanities area was the one which attracted the best results - most of its courses received the mark 'good'. According to the *Guia do Estudante 88* 'UFPE has bad buildings, but despite that the teaching has made some progresses'.

In relation to the Brazilian design courses the *Guia do Estudante 88* did not differentiate between the design careers; it grouped all the qualifications under the title *Desenho Industrial*, a fact which I consider regrettable because there are good courses in graphic design in Brazil e.g. the one which the UFPE offers.The researchers of the Guia do Estudante 88 should never misunderstood graphic design with industrial design (but they can, rightly so, blame the terminology used in Brazil, as we saw in Chapter II). Nevertheless, from the 26 educational institutions which offer design courses in the country at that time (nowadays are 27) 16 were examined. Only 6 of them were considered

[24] Sheila MAZZALORE, **Guia do Estudante 88** (São Paulo: Abril, 1987).

'good'[25]; 6 'not bad'[26]; and 4 'weak'[27].This data is alarming! And especially so when it is known that there is a private design course in Rio de Janeiro - Faculdade da Cidade - which is an evening design course, with more than 50 students per class, that received the qualification 'good'. It makes me wonder what kind of design education phenomena are happening there?

In the UFPE *Centro de Artes e Comunicação* (Art and Communication Centre), only the course of Social Communication, in its Journalism training version, was seen as a 'good' high level course. Both, the architecture and industrial design courses (the latter including visual communication) were considered 'not bad'. But, as consolation, the UFPE design courses were the ones that received the best marks in the Northeast region. As Lima explains in her report, "We can take into consideration the fact that we are part of the majority (55,2%) of the 'not bad' courses, and even so we offer the best design course in the region...But if the *Guia do Estudante 88*'s readers are those who will attend the next 'vestibular' we actually have to change that concept in order to catch the most interesting and interested youth from this generation...The criteria used can be useful in reflecting about ourselves, in proposing certain actions to improve the day-to-day running of our courses, aiming to change our external qualification and certainly the quality of the teaching offered...The curriculum change forecasted for the coming months needs the teaching staff and the student body working together as a group in order to make certain goals easier to achieve."[28] Afterwards, Lima goes on to make an analysis of UFPE design courses, following the same *Guia do Estudante 88* criteria of evaluation, and sorting out some proposals that she thought to be the solution for the educational problems that those courses were facing, externally and internally. Nevertheless, among all the issues stressed by Lima what drew my attention was the last one, regarding to the demand

[25] The Brazilian design courses considered 'good' in 1987 were: Faculdade Armando Alvares Penteado - FAAP (SP); Universidade Mackenzie (SP); Faculdade de Belas Artes (SP); Faculdade da Cidade (RJ); PUC- Rio de Janeiro (RJ); Universidade Federal do Rio de Janeiro - UFRJ (RJ).

[26] The Brazilian design courses considered 'not bad' in 1987 were: Universidade Federal do Paraná (PR); Faculdade de Desenho Industrial de Mauá (SP); Faculdade Integradas Silva e Souza (RJ); ESDI (RJ); Fundação Mineira de Arte -FUMA (MG); UFPE (PE).

[27] The Brazilian design courses which received the mark 'weak' in 1987 are: Universidade de Guarulhos (SP); Universidade Estadual da Bahia(BA); Universidade Federal do Maranhão (MA) Universidade Federal da Paraíba (PB). Note. Paradoxically is from this design course that the main movements towards the establishment of post-graduation design courses come, and also two of its present, and one former, lecturers - G.Bomfim, L.M.Rossi and I. Macedo respectively, are very keen to post-modern (design) movement. This fact suggests that the Guia do Estudante is superficial.

[28] Edna Lúcia Cunha LIMA, op.cit.,p.7.

of the job market for graduate designers: 'The purpose of graduate is not known for certain'. This assertion to me sounds very serious, because if the UFPE graduate designers were successful in the job market, it is quite certain that they would be publishing the results of their work and skills, as indeed many Pernambuco designers do.[29]

In this case, it is worth remembering that one of the advantages for those who get a higher education is the fact that they are more likely to get a higher status and specialised job. However, according to Lima's assertion, it seems that the UFPE design graduates are neither getting design jobs nor working in design.

Due to the fact that there is no previous design education for UFPE design students, it is not difficult to imagine how the students who got university places had to behave throughout an adesign formal educational system, to keep 'alive' their design ability: with too much perseverance and vocational determination. That is to say, students who were self-motivated into aims. However how disappointing and sad it is to know that after all that, from a class of 20 or 30 design students, who presumably passed through a similar process of self-education in design, only 2 or 3 find opportunities to carry on their vocation as designers.[30] Yet it was supposed all of them, or at least most of them, after four or five years in the university getting specialised design training, and aiming to earn their living by design would be so. However, the personal dedication and perseverance to reach an ideal; parental hope and public money spent all seem to be wasted.

Some Brazilian design educators tend to blame the 'ignorance' of

[29] See for example: João Roberto C. Nascimento and his design team at the Multi Programação Visual, in the article puplished in the Costa Rica magazine **Modulo 12-13** (Special issue Brazil), 1983; and in **Design&Interiores (D&I)** nº19, julho de 1990, p.95.

Carlos A.R. Righi and his design team at the LDP-DI/UFPE article published: in the Report of the National Contest **Tecnologias Apropriadas/Saneamento Básico**, in the article *Equipamentos para coleta de lixo aclopável à bicicleta* (Brasília: CNPq/OPS, 1985) pp.32-9; in the *Designers residentes*, **D&I**, nº07, abril 1988, pp.111-3; in the Recife's furniture magazine **PROMOVEIS**, *Desenho Industrial: a arte como necessidade*. 1988, pp.22-4.

Margarida Correa Lima e Paulo Oliva. *Visual Indígena*, **D&I**, nº14, junho de 1989, p.133.

Neide Câmara in the article *Mar Hotel - Recife*, **D&I**, nº14, junho de 1989, pp.115-9. Project in which José Goiana Leal was the architec and Burle Marx made the landscaping.

Guilherme e Edna Cunha Lima e Solange Coutinho and their design students team at the LCV/UFPE, in a Recife's newspaper article *Laboratório tem vanguarda nas artes visuais*5.9.89, p.7.

Dr.Delfina Falcão, in the article *Como o computador pode reduzir o desperdício no corte do couro*. In Journal **Tecnicouro nº6** (Novo Hamburgo- RS: CTCCA, Vol.10, September 1988) pp16-18.

[30] Lia M.Rossi estimates that there are in Brazil around 10,000 graduated designers, only 20% working in Design. In **Utopias e Realidades**. Paper presented in the Workshop O Ensino do Desenho Industrial nos Anos 90,LDI/SC, Canasvieiras, Florianópolis, julho de 1988.

the job market which does not demand the graduate designers' skills. Others accuse the term *desenho industrial*, because it is not understood as *design* within the Brazilian society. I say that the problem is in the design education itself, because despite the thousands of hours/classes informing, training, developing students' skills, UFPE designers-teaching staff seem completely forgot to advise, remind, alert and even teach their design students that in the Brazilian society, chaotic in terms of economics and politics, the first thing that a design graduate has to know is how to design his own professional career. That is to say how to foresee the gaps in the Northeast material culture, in order to fill them, and act like they have acted during all those years of previous formal education: aiming at a goal!

Nevertheless, how is it possible to behave like that if the design teachers teach that: a designer is one who works in fully mechanised industries and for mass production; that designers are those modelled upon images of the American, Japanese and European ones. These are only some of the mistakes that we have made. Our design courses have never been oriented towards the students needs, abilities, desires and aims with an understanding of our Cultural History. On the contrary, our design courses have been oriented towards abstract elements like form, function, economy, cost, environment, industry, utility, ergonomics, when in fact we know little, perhaps nothing, about these subjects, and know less still about Northeast man, his environment, and his culture (because these matters are not taught or discussed systematically in our courses). We always aim to be at the imagined level of the Americans, European and, nowadays, Japanese design professional activity. We have always looked straight ahead, without seeing what is happening around us, when each generation entered to university to attend any of the UFPE design courses, with the precise objective to earn their living with design. How many lives have we changed? How many paths have we blocked? How many walls have we built? Can we carry forward the weight of these answers?

If we stop briefly and try to make some deductive inferences in order to find some conclusions, to guide further our design education attitudes we can see, for instance, that: UFPE design graduates who are not earning their living by design, have developed throughout their design course some level of adesign syndrome. For some reason, UFPE design courses, in particular the industrial design course, have not properly educated their design students, thus they are not confident about how they can earn their living in design. Therefore our courses have been responsible for the development of adesign syndrome in our graduates. This can be an indication that my third hyphotesis is also correct and, therefore, I will use it to guide my proposals in the

following section.

I will attempt to show the main internal factors which can be considered as the main causes of such a situation, and present some suggestions, based on the Design Language Structural Model presented in the Chapter IV, to improve the quality of the UFPE design courses.

The UFPE Design Courses

The *Universidade Federal de Pernambuco* - UFPE has as its paramount objective the cultivation of all areas of pure and applied knowledge. Amongst its basic purposes, the study of Brazilian reality is emphasised as is collaboration for the development of the country, in particular the Northeast region. The aims of UFPE are to extend teaching and research within the community, thereby enlarging the fields of human knowledge, forging lecturers and specialists who are able to assume the leadership of this development process.

The UFPE was founded in 1946 with the name *Universidade do Recife*. It was a result of the reunion of the Law Faculty, established in 1827, the Engineering School, created in 1895, the Medicine Faculty, founded in 1920 together with annexed courses on Pharmacy and Odontology, the Philosophy Faculty, created in 1941, and the Fine Arts School established in 1932. The old University of Recife was the first in the North and Northeast, and the largest university centre in those regions.

In 1946, several scientific research institutes were founded, which came to consolidate the tradition of research already recognised in the colleges and faculties of the *Universidade do Recife*. In 1965 the *Universidade do Recife* became the *Universidade Federal de Pernambuco*; and from 1968 onwards that institution joined the other Brazilian federal educational institutions to establish the new educational system imposed by the military rule.[31]

The economic crisis into which Brazil has since then sunk, has been reflected in the other sectors of society, and it greatly altered the structure and academic management processes within the UFPE. This has caused UFPE to lose a large part of its efficiency and prestige gained through tradition. Such an impact has also been reflected in the reduction of the means to realise its educational objectives. The vicious circle is never-ending, as is seen in the decrease of intellectual production.

Recent analysis of the UFPE's situation has shown that the institution is trying hard to plan its development, elect priorities, optimise resources and mobilise its academic community towards the recovery of its educational quality.[32] Nevertheless, this is not only

[31] Text based on **UFPE: Plano Diretor Físico** (Recife: Editora Universitária, 1985) p.15.

[32] Text based on Pró-Reitoria para Assuntos de Pesquisa e Pós-Graduação-PROPESQ,**Plano de Capacitação Docente** - Quadriênio 1984-1987. (Recife : UFPE, outubro de 1984) pp.4-5.

happening with the UFPE.

According to Prof.Albuquerque "the first significant fact for the Brazilian universities in the last two decades (60s and 70s), is the large and frenetic expansion of the registrations, which rapidly increased from 200 thousands, to reach 1,4 million enrolments in 1980; an expansion which would have been hard to achieve without sacrificing the [teaching and researching] quality...Perhaps the most common criticism is that the Brazilian universities are inappropriate to deal with the problems which press the communities which they are placed...What is important, however, is that the Northeast universities are looking to be oriented towards the world outside, aiming at more productive responses to social complaints, and for them to take initiatives in bringing about important and dynamic interactions with society."[33]

Among many important aspects underlined by Prof.Albuquerque about the Northeast universities, I would highlight the following two points regarding their objectives and planning: "(i) to encourage the integration of the university students in the process of regional development;... and (ii) to guide the university activities towards the world outside, whether in the field of helping technically-specialised services (in the teaching of and applied research), or in social actions for the community's development."

And the means that I see as a starting point, at least to command such a change in attitude, is via the teaching staff, whom I believe to be the people best placed to give wide dissemination to new ideas. According to PROPESQ, the UFPE body responsible for research and post-graduate affairs, "despite the present picture of the UFPE (1984), it owns a large range of human and material resources which can make possible for it to carry out an outstanding role in the cultural and socioeconomic development of the region."[34] This statement may sound unrealistic, because of the inclusion of material resources which are patently precarious in the UFPE. However, as far is the human resources are concerned, UFPE has indeed a rich but undervalued potential. And it is this aspect that I would like to consider next.

[33] Roberto Cavalcanti de ALBUQUERQUE, **De Brasiliae República: o estado e a distribuição do desenvolvimento**. (Rio de Janeiro: Nova Fronteira, 1985) pp.123-29.

[34] PROPESQ, **Plano de Capacitação Docente** ,op.cit.p.7.

The Fine Arts School of Pernambuco

The foundation of the*Escola de Belas Artes de Pernambuco* goes back more than half a century. It was in the year of 1931 when the first movements towards its foundation began: Prof.Jayme de Oliveira already thought about a *Casa da Arte* (Arts' House) which would bring together Pernambuco's artists and those people who enjoyed fine arts. However, it was not until August 1932 that a group of people, brought together in the attic studio of the artist Mário Nunes, established the school.

The Fine Arts School of Pernambuco, initially had as its objectives simply to group in one place Pernambuco's artistic skills and creativity in order to attend to the Recife's rare demand for paintings, drawings, and sculptures.

The foundation of the school received the support and encouragement of the most outstanding members of Pernambuco's society: Gervásio Fioravante, José Maria Carneiro de Albuquerque; Francisco Barreto Campello, Mário Carneiro, Afonso Marroquim, Luis Cedro, João Alfredo Costa Lima, Domingos Ferreira, Geraldo de Andrade, Newton Maia, Nestor Moreira, Manoel Caetano Queiroz de Andrade, Carlos Simon, Nelson Novaes, Murilo la Greca, Giácomo Palimbro, Mário Nunes, Henrique Elliot, Babiano Silva, Heirinch Moser, Baltasar da Câmara, Avelino Pereira, Álvaro Amorim, George Munier, Fédora Fernades, Emílio Franzoni, Matia Teves and Abelardo Gama.

From that list, it is possible to notice that not only were artists involved in the movement, but also writers, architects and engineers. The creation of the Fine Arts School was so important that it is said that it contributed decisively to the establishment of the Federal University of Pernambuco: "it was one of the main segments of Pernambuco's culture and knowledge, which made the creation of the Federal University of Pernambuco possible."[35]

The Fine Arts School run at 157, rua Benfica, until 1977, when part of its courses were moved to the*Campus Joaquim Amazonas* in the Art and Communication Centre Building, settling its core at the Department of Art Theory and Artistic Expression. However, the school continued to use its old address for workshops on drawing, painting, engraving, glass, and the restoration and conservation of works of art. Nevertheless the Fine Arts School was not only interested in artistic practice itself. On 16th March 1952, it started a course on

[35] Marcílio REINAUX, *Uma herança muito rica.* In UFPE - **VII Exposição de Artes Plásticas da Escola de Belas Artes de Pernambuco** (Recife, cartaz/folheto, 1989).

design teaching training which, I am convinced, was the very embryo of the UFPE's present design courses.

The *Curso de Professorado de Desenho* according to one of its lecturers, Prof.Manoel Caetano Q. de Andrade, was "intended to train, both technically and culturally, design teachers for all levels of education, including the higher level. Design was considered a paramount element as: "a means of expression, a basis for cultural background, a means of psycho-educational development, a factor for interlinking all arts, and an original didactics resource for the fine arts. In particular, in a country which just recently has drawn attention to academic and scholar education, design has increased its value over the teaching of graphic expression, and this makes it one of the main aims of those who feel responsible for its establishment, and development; heading for better days."[36]

Andrade goes on to say: "The training of design teachers does not only mean to qualify professionals to fulfil the numerous teaching jobs in the basic level of education, as well as in the architecture, engineering, chemistry, agronomy, geology and fine arts schools; but also, it gives vital background to the future and profitable professions of scenography, advertising, photography, interior design, industrial design and visual communication". This statement gives us a clue to two points: (i) that already in the early sixties they were synchronised with what was happening in Europe, USA, and in the axis São Paulo and Rio de Janeiro; (ii) that the creation in 1972 of the UFPE Design Courses were not an "alternative to attend to the students' demands to carry on their studies at a higher level",[37] but also a conscious forecasting of the development of educational ideas inside the Fine Arts School of Pernambuco. That is to say, a natural consequence of what had been happening and discussed within the school.

To endorse that point, I turned to the syllabus of that design teaching training course and their respective lecturers to find out what was kept - philosophically and educationally - in the UFPE Design Courses. As a result I found not only a superb teaching staff composed by painters, engineers, architects, sculptors, philosophers, educationists, doctors, psychologists, and historians; and a curriculum which was certainly the basis to planning the UFPE design courses syllabuses in 1972. These were the subjects in the curriculum of the Curso de

[36] Manoel Caetano Queiroz de ANDRADE, *O que é o curso de professorado de desenho*, in **Curso de Professorado de Desenho** (Recife: Escola de Belas Artes da Universidade do Recife prospectus, undated) Probably before 1964.

[37] Geraldina Porto WITTER et Alii, **Desenho Industrial: uma perspectiva educacional.** (Brasília/São Paulo: CNPq- Coordenação Editorial, Arquivo do Estado de São Paulo, 1985) p.115.

Professorado de Desenho: Drawing* (artistic; technical; sketching; live model; perspective); Geometry*(descriptive); Modelling*; History* (art; technology; philosophy; education); Composition* (artistic; decorative; industrial); Mathematics; Painting (still life); Psychology; Didactics (teaching; design); Pedagogy (school management).

These subjects marked with (*) were the main subjects in the early days of the UFPE Design Courses. At that time subjects which would compose the future syllabuses of the UFPE Design Courses, like photography, advertising design, and graphic design, were already being approved by the Fine Arts School directorship to be introduced into the design teaching training curriculum.

In 1971 there was also in the Fine Arts School's environment, a movement from lecturers and students which ended in the creation of two vocational design courses: the industrial design course, and the visual communication course, in 1972. These two courses run at the Fine Arts School main building until 1975, when they were moved to the *Centro de Artes e Comunicação*, CEAC, in the University City.

The Arts and Communication Centre

The *Centro de Artes e Comunicação* - CEAC, occupies an area of 12,996 m2. The Centre itself is very spacious and is composed of classrooms equipped with drawing boards for practical classes; classrooms for theoretical subjects; wood, plaster, clay, printing workshops; a typography;[38] a photography lab; an exhibition hall; a library, and administrative rooms amongst other. However, according to Lima 'the CEAC is presently (1988) overcrowded. Therefore, there is a chronic lack of adequate classrooms for the design courses' disciplines. This fact together with the lack of lecturers' rooms, makes it difficult for teachers to keep in touch with their colleagues, and with their students. Additionally the classrooms are always dirty, and the drawing boards do not allow drawing of the required precision. The lighting is very deficient. In the workshops and laboratories the cleaning service apears not to exist. There is rubbish accumulating in the CEAC courtyard and bushes grow everywhere'. This justifies her proposal of 'adequate classrooms for the design courses, and new lecturers' rooms and calls the attention of CEAC management towards the cleaning and maintenance problems, and says that it is necessary to establish a policy towards the restoration of laboratories, studios and workshops'.

[38] The main tools, and machines in this typography were a gift from Aloísio Magalhães to the UFPE.

From these problems I would emphasize the impoverished condition of the CEAC Library. I believe that the modernisation and recovery of the Library is crucial for any attitude towards the improvement of the education in the UFPE design courses. And Lima seems to agree with that: "In the Joaquim Cardozo Library seems to be a lack of definition in its objectives, maintenance budget and stagnation....It lacks a specific Portuguese bibliography on design, and what exists there is outdated and obsolete."[39] She goes on to suggest one thing so basic that sounds incredible: that the Library does not yet have 'a survey to collect all the titles existing on the Library's shelves'. Any library is supposed to have their bibliographical material sorted out for public consultation.

The shortage of Portuguese bibliography on Design, however, is related to the lack of documentation and report of the works developed by Brazilian designers professionals and educationists rather than a particular failure of the Joaquim Cardozo Library.

The departments which compose the CEAC structure are: Architecture and Urban Planning, Arts, Design, Art Theory and Artistic Expression, Social Communication, and Library Management. These departments are responsible for running the postgraduate (urban planning), undergraduate (industrial design, visual communication, journalism, advertising, social service, arts, music, drama, library management), and diploma (artistic education, and drawing and modelling) courses. The population within CEAC in 1984 was composed by 2,285 people: where 1,971 were students; 250 teachers; and 68 support, technicians and administrative staff.

The Department of Design

The UFPE industrial design and visual communication courses are under the management of two departments: the Department of Art Theory and Artistic Expression, and the Department of Design. The latter, is the responsible of 89.3% of the design courses' hours/class. Therefore, it is on the Department of Design that I will draw your attention.

In August 1989, the Department of Design presented its *Plano de Ação Plurianual* ,1989-1991[40] (Multi-annual Action Plan), on which it is

[39] Edna Lúcia Cunha LIMA op.cit., pp.10-1.

[40] Departamento de Desenho, **Plano de Ação Plurianual do Departamento de Desenho - Quadriênio 1989-1991** (Recife: UFPE/CEAC, Agosto de 1989) 15pp.

stated: 'Design has performed a paramount role as a means of expression for several segments of human knowledge, and it is useful as a universal synthesiser of language for all techniques, arts and sciences... design has pushed forward economic development, offering to the industrial sector the basic resources towards manufacturing design, whether a simple personal item or the most complex building with all its equipment. Design, as an area of human knowledge, is an activity closely related to man's nature, because it is his means of expression and observation, and which has been used since old times. As art, it marks epochs... as technique, it is an agent inserted into the process of social and technological development'. This endorses what has been said throughout this dissertation in the words of Archer, Baynes, Bonsiepe and others. That is to say the UFPE Department of Design also understands *Desenho* as an area of education and, therefore, human knowledge.

Furthermore, the Department of Design regrets that '*Desenho* has not received the due importance which it indeed deserves in the child's formal education, who quite certainly will be involved with design in the future in order to fulfil his/her professional activity. Misunderstandings... most of the time, have caused the poor teaching orientation in this subject, when it is possible to ensure that design can be taken in by all, and not only by artists and professionals... Political and economical problems have contributed to the result that design teaching has been relegated to a second plan in primary, secondary and tertiary education, or even abolished. The result of such a deficiency on design teaching has been present throughout the training of high level professionals who depend entirely on design, whether as a language or a technical resource to express and develop ideas. This has generated distortions and limitations on these professionals background'. As we can see, at least at a pedagogical discourse level, the UFPE Department of Design seems to be open to ensure the place of design whether in general formal education or within Pernambuco society.

There is another statement in that document that I would like to comment on because of its importance nowadays in an educational context: 'We live today in the Information Technology era. Computers help the speed of the technological process. Computer-aided drawing and design (CAD) has already been used by designers, although we have little knowledge of that kind of technology amongst engineers, architects and designers from the Brazilian Northeast, in particular in the UFPE's scope'. This is an alarming statement and clear evidence of the lack of resources to improve such an important area within educational contexts, especially in the case of design higher education.

Nevertheless, the Department of Design is responsible for 66 disciplines from fourteen undergraduate UFPE courses. By order of involvement we have: industrial design (58.7%); diploma in drawing and modelling and artistic education (51.5%); all sorts of engineering courses (36.5%); visual communication (22.6%); and architecture (15.7%). Each percentage corresponds to the total amount of hours/class (5,250 hours/class) which the department is responsible for.

The Department is composed of 35 people (6 administrative staff and 29 teachers). The teaching staff is grouped in three distinct areas:

(i) 14 teachers in charge of the disciplines related to representative and operational drawing;

(ii) 8 teachers responsible for the disciplines on normative drawing;

(iii) 7 teachers in charge of the subjects on design practice (five in industrial design, and two in visual communication).

All teaching staff have graduated in one of the design careers: (architecture, engineering, product or communication design). Amongst the department's teaching staff there are two Doctors, four Masters, and twenty three Bachelors (three of them are due to finish their MSc, or MA, courses in 1991). Twenty five lecturers are full time, and only four are part-time.

Having shown all these UFPE Department of Design data, we can now start building our own design terminology, in order to rename the parts according to what they merit. I would start from CEAC's name itself.

That Centre should change its name, perhaps, to **Centro de Desenho, Arte e Comunicação** (Centre of Design, Art and Communication) due to the following facts:

(i) almost all of CEAC courses need design to meet their objectives;

(ii) the CEAC has more than half of its physical environment occupied by design courses, be it environment, product or communication design;

(iii) the CEAC gives shelter to one of its Departments which gives great support for the development of design courses, in particular industrial design, visual communication, architecture, and engineering; and above all,

(iv) the Centre has a department which is responsible for the development of the area of human knowledge called ***Desenho*** at all levels of formal education in the State. These are some of the basic arguments which the UFPE Department of Design can use in order to have the CEAC's name changed to *Centro de Desenho, Artes e Comunicação*.

The Department of Design, in its turn, has the responsibility of 58.7% of the 2,910 hours/class of the industrial design course. Due to this fact, and also due to some of the internal disagreements among industrial designers and visual communication lecturers, it was thought in late 1989 that these two courses should be co-ordenated separately, and even the idea of the Department of Design changing its name for *Departamento de Desenho Industrial* (Department of Industrial Design) was cogitated. With regard to the separation of the courses co-ordination, this eventually happened: nowadays there is one co-ordination for each course. However the idea of changing the Department's name would be a nonsense. The wide scope of subjects and disciplines related to design for which the department is responsible is such that to change its name for industrial design or product design would only restrict its action and philosophical approach. Besides, there is much evidence that the term industrial design has been considered inadequate and restrictive because of its relation with mechanised means of manufacture and mass production. Also it is a fact that even in countries where industrial design had an important role in the development of their contemporary material culture and wealth, there are criticisms of the capitalism ideology to which the term implies. In the Brazilian design context, as Ivan Macedo (the present co-ordinator of the UFPE industrial design course), puts it, some professionals realise that industrial design may be 'elitist and as implement towards the capitalist system, and an activity which participates in the production of artificial needs'; while others think that industrial design is 'an agent for social benefit and an instrument to overcome the inequalities amongst nations, and that it can strengthen the people's cultural identity'.[41]

And furthermore, according to the Brazilian Northeast characteristics, we are far from reaching the stage that industrial design had reached in other countries. And certainly it is not the shift in a Design profession's name that will fill this gap, not because of the attitude itself of searching a proper and more elucidative term to describe the activity, but because of the way in which the discussions were carried out and how the decisions were taken. The evidences of this were presented throughout former chapters of this work. I believe that the attitude of questioning the appropriateness of terms is a good one, and in this section I tried to collect arguments to analyse the title of the UFPE Department of Design. According to my findings the present

[41] Ivan A. MACEDO, **Anotações para uma política educacional de desenho industrial** (Position Paper presented at the "workshop O Ensino do Desenho Industrial nos Anos 90", LDI-SC, Cansvieiras, Florianópolis, julho de 1988.

name should not be changed: it should keep its name as the **Departamento de Desenho**, of the *Centro de Desenho, Artes e Comunicação* at the UFPE.The term ***Desenho*** in this title is the best one can possibly find to name the place: (i) where the **Cursos de Desenho** (Design Courses) in Pernambuco run; and (ii) where a considerable part of Brazilian Northeasterners **desenhadores**[42] (designers) *industriais, gráficos, de móveis, de modas, de jóias, de estamparias, de livros* etc., are forged. And over all the word ***desenho*** has the power to be equated to the English and Spanish words *design* and *diseño*, both in its accuracy and broadness, as demonstrated in Chapter I of this work.

The UFPE Design Courses Nomenclatures

I do not see the disagreements, controversies and conflicts within UFPE Design Courses teaching staff as negative aspects, despite the fact that sometimes these disagreements can involve and indeed prejudice the students. Historically, it has been those disagreements which have enabled significant changes to take place in the educational attitudes of those courses. The different ideas and approaches on design high education has established the search for educational models to support the arguments. And this is a very positive thing. But it is obvious that in every conflict there is always somebody who is defeated, and leaves disappointed and frustrated. Nevertheless, this happens because "frequently teachers,... lacking encouragement to view their work in a social context other than as do-gooding to the poor and the intelligent, took the critique of professionalisation as a personal attack."[43]

Nevertheless, the UFPE design teaching staff conflicts, when carefully analysed, can be classified into two basic problems:

(i) the lack of understanding about the role of a vocational design education within a social context like the Northeast one, mainly because the misunderstandings have been created from the way design activity and education have been defined and conceptualised in Brazil (as we saw in Chapter III) and;

[42] As in Portuguese we have the two forms *desenhista* and **desenhador**, I think better to use the later form, because of its similarities with the Spanish *diseñador*, and to differentiate between those who simply make drawings (although I consider that even in this case the draughtsman also designs) and those who know how to draw , to foresee, to project, to plan, to design.

[43] Ivan ILLICH, **After deschooling, what?** (London: Writer and Reader Publishing, 1981 reprinted edition of 1974) p.9.

(ii) the lack of understanding that any sort of design professional activity is relevant to our poor society - as opposed to what is suggested in the Brazilian Designer Professional Regulation Bill, which considers industrial design and graphic design as the only existing design careers. Such dualism tended to cause lecturers of both UFPE design courses to compete, each side considering its professional background rather more important than the other.

It is worth remembering that a similar process of separation between Architecture and Art happened in Pernambuco, what did not bring any advantage to anybody. On the contrary, the situation for architects getting a job in Pernambuco is probably worse than graphic and visual designers. However, Pernambuco industrial designers and visual communicators did not learn from previous experiences and repeated the mistake when they demanded a total separation from the Architecture and Engineering Professional and Regulation Council. And because of that we are still without a professional body to defend Pernambuco's designers exploitation in the job market, when, ocassionally, their few services are demanded or contracted. I think that the experiences are there to tell us what is best to do to get the best for Northeast designers. We should not adopt separatist attitudes. And, just to realise the UFPE design teaching staff strength and knowledge, let us have a look in their characteristics, in particular those of the teachers who decide the Design Courses' objectives: Amilton Arruda; Ana Q.Andrade, Carlos Righi, Iolanda Andrade, Ana Correia, Ivan Macedo, Marcelo Soares; Margarida Lima, Neide Grant, Edna Lima, and Guilherme Lima.

All teachers are full-time (40 hours per week) and 75% of these are not supposed to have any sort of professional design practice activity outside the scope of the university.

With regard to the teaching staff background, 17% are architects, 33% are visual communicators, and 50% are industrial designers. Seventy five per cent of the design teaching staff belong to the Department of Design, and 25% to the Department of Art Theory.

Concerning the teaching professional category, 17% are junior lecturers, 75% lecturers, and 8% is related to only one reader. In relation to the teaching staff titles we have: 67% are masters,[44] 17% are finishing their MPhil courses, both in England, 26% are Bachelors, who have contributed significantly to the development and management of the Department of Design (Iolanda Andrade is vice-head of the

[44] Three of these lecturers started in 1990 their MA and MSc courses, at the Istituto Europeu di Design, in Milan; and in the UFSC and in the USP - Brasil. The other two are finishing their MPhil and PhD at the University of Reading.

Department of Design), and the two other are developing outstanding professional work in the name of graphic design in the Northeast region.

An amazing coincidence is the fact that 50% of UFPE design courses teaching staff have been trained in Europe (42% on British universities postgraduate courses and 8% in Italy). 17% have been trained in North America (USA and Mexico). The total is 67% of the teaching staff trained and educationally experienced abroad (Neide Câmara Grant is an example of professional design practice experience in England, nowadays running one of the most creative design offices in the Northeast region). Together with all these positive figures we have 68% of teaching staff with more than 10 years in design teaching; 16% with more than 5 years, and 16% with less than five 5 on teaching.

Comparing these figures with those presented by Witter concerned with characterisation of Brazilian design teaching staff, the UFPE design courses nowadays have one of the best academically qualified teaching staff.

Therefore, there is no reason for a lack of integration among the UFPE design teaching staff. And according to Arruda "design courses must have a common thought and not a localised and dispersed solution"[45], a statement with which I fully agree, despite knowing that it is a work which needs intellectual maturity from all. However, first of all some points have to be made clear in relation to design categories, design careers, and their nomenclatures, in order to highlight any educational attitude and decision taken.

The visual communication course nomenclature

From 23 to 27 may 1989, the fourth latin american congress on industrial design, IV-ALADI, took place in Havana, Cuba. This event happened in the *Instituto Superior de Diseño Industrial* and a large exhibition on *Diseño Industrial* was organised - clothing, footwear, furniture, machines and equipment, ceramic and artefacts in general - and another on *Diseño Informacional* (Information Design)was also organised in order to celebrate the event.

As Brazilian designers are easily convinced about new nomenclatures used to identify any design activity, some, after Havana's Industrial Design Congress, would say that *Desenho Informacional* is a

[45] Amilton ARRUDA, **O Ensino do Desenho Industrial na UFPE** (Recife: Departamento de Desenho, 1988) p.1. This paper was presented at the Canasvieiras Workshop in July 1988.

more precise term than Visual Communication or Visual Programming, as it is known in Brazil, the design career which is concerned with images whose function is to communicate and inform visually, through signs, symbols, and which works in the world of press, books, printed advertisements, and everywhere the printed word or image appears, whether on a sheet of paper, or a bottle, or even in urban signing.

According to those who defended *Desenho Informacional*, it is best because 'informational design' is concerned with designs in which priority is given to the objects' information, having as its basis the way in which the user/consumer's visual perception runs. However, although the word 'informational' remind us of 'Information Technology, IT'[46], according to Valéria Munk London, former ALADI president, this new term "has nothing to do with IT itself, although in the development of designs in that branch, IT can be used as a tool."[47]

If the confusions and ambiguities generated by the lack of research and proper definition of design terms and nomenclatures used in Brazil was not enough, e.g. *design ; desenho industrial, desenho de produto, projeto de produto, desenvolvimento de produto* [48] *, design industrial; design gráfico, comunicação visual, programação visual* amongst others, surely one more new term would not cause any problem at all to that chaotic picture. But I would say that indeed it does!

As we saw, according to Potter, design can be divided in three categories or branches: environmental design, product design, and communication design. The last one has a wide spectrum of professional careers which might range from "freehand book illustration to the very exact disciplines of cartography or the design of instrumentation panels for aircraft."[49]

'Communication' for designers means discussing 'the ways and means of sending and receiving and getting information relevant to a purpose in hand, that purpose being the whole conduct of the design process as it affects a designer, his colleagues, the clients for whom he

[46] **Information Technology - IT**: the application of appropriate technologies to the processing of information. In general, this currently refers to the use of computing, telecommunications and digital electronics. Where "information" is a collection of items, such as text, data, symbols, images or sounds which conveys meaning.

[47] Interview , August 1989.

[48] The term **Desenvolvimento de Produtos** (Product Development) is widely used in Brazil, but it is wrongly applied. Product Development is the expression to be used when one wants to refer to all marketability aspects, to be studied, researched and analysed of any new product which is due to be launch in a market. It involves many and different kinds of professionals.

[49] Norman POTTER, op.cit., p.14.

works, the contractor or manufacturer, the user or public, and all other parties or interests involved... but it must be clear that this purposeful communication is used as a means - not an end - in a situation of which the outlines are fairly well known.' Taking for example one of the communication designers professional careers, the graphic designer, they "can find this confusing, because their 'end' may be to find ways of transmitting a given message effectively. Thus they are using the design process, two lines of communication that may either cross or reinforce each other."[50] In short, communication designers require the full domain and a perfect understanding of the relations among alphabet, image, means and processes. Therefore the word 'communication'[51] in the expression communication design fits perfectly well because it suggests an effective intention or desire, and because it comprises the basis which includes for instance oral and model questioning. However let us see what the expression visual communication means.

Visual communication is that communication which uses the visual channel to transmit messages. Visual Communication is a branch of the Theory of Communication, the field of study which searches to establish the scientific basis of communication, and which has a multi-disciplinary character with several other study field such as semiology, sociology, anthropology, linguistics, theory of form or gestaltism, and the theory of information.

The Theory of Information, for example, involves the contemplation or examination through speculative and rational knowledge, of the group of scientific basic principles which are turned to mathematical analysis of the problems concerned with the transmission of signs during the process of communication. And signs are the physical or energetic supports of a message, that is to say any unit which, in conformity with the rules of a code, takes part in a message, e.g. phonemes, language, and electrical impulses.

A communication system, in its turn, is that system in which messages are coming and going between two distinct poles in space and time. It is composed basically of:

(i) the contractor or client (the source), the one who wants to inform something to someone through a message;

(ii) the communication designer (the sender) the one who codifies the message required in signs, symbols or whatever visual means of expression, in order to reach the addressees;

[50] Ibidem, p.124.

[51] Synonyms for **communication**: 1.connection, contact, conversation, correspondence, link, transmission; 2. disclosure, dispatch, information, intelligence, message, news, report, statement, word.

(iii) the visual channel, the means used to send the message;

(iv) the human vision sense (the receptor), which exercises the reverse operation to the sender; and

(v) the consumer or user (the addressee), to whom it is desired that the message reaches.

As we can see from these denotations the expression Visual Communication is not the best one to identify the design category in which the professional plans, projects, foresees, draws models messages to reach a desired addressee.

According to Stuart Macdonald that reason for the proliferation of expressions such as "Visual elements, visual grammar, language, and literacy, visual communication, visual kinetics, visual perception, experience, awareness, visual phenomena - the proliferation of such phrases in contemporary writings manifests the growing interest of art [and design[52]] teachers in a visual education designed to benefit all children, not just the talented"[53] .

In fact the interests about things related to the working and perception of vision goes back to the 1930's, when visual education became an important aspect of formal education. "Cole & Walter Smith advised simple drawing, geometry, and perspective for all; Dow urged simple methods for art appreciation; and more recently Read put forward the view that education itself should be through art."[54]

Nevertheless, I think the adjective 'visual'[55] is inappropriate to be used as representative of a whole process of communication, when in fact it only denotes one aspect of the communication process: the channel.

On the other hand the expression *programação visual*, which, as we saw, was invented in the ESDI's environment, and spread by the *Programação Visual- Desenho Industrial* , PVDI, design office, is also not sufficiently clear to be used as representative of a design category.

The term *programação* (programming) has more to do with the act of establishing or scheduling a programme for a computer, industry, enterprise, organisation etc. It is generally related to an aim which must be fulfilled or executed within a determined time. 'Programming' is also constantly used to refer to any radio, television, film, musical etc. programme. I would say that this term is much more linked to Information Technology rather than Design. And this is so true that in

[52] For instance the case of Hochschule für Gestaltung, in Ulm, which had a course on Visual Communication.

[53] Stuart MACDONALD, op.cit.p,372.

[54] Ibidem

[55] Synonyms for **visual**: 1. optic, optical; 2. discernible, observable, perceptible, visible.

Pernambuco when a 'programmer designer' goes to the Town Hall to get his registration as freelance professional, they classify his job within the activities which deal with data processing and computer programming.

Therefore, both terms 'visual' and 'programming', are not precise enough to identify any of the design categories, branches or faculties, nor any of its professional careers, because the job of a communicator designer is rather more than simply to 'conceive, represent graphically and organise messages by means of the visual channel', as it is denoted in the Aurélio Portuguese dictionary.

Adopting the term **Desenho de Comunicação**, in the present context of the UFPE's designs courses, would probably be sufficiently open for a broad understanding and development of many communication design careers as is the case in the 'Department of Design for Communication'[56] at the Royal College of Art, in London.

"Within the unique spectrum of disciplines represented in the RCA, those comprising the Faculty of Communication occupy a special and vital role: they represent not only rich and fascinating media in their own right - film, video, computer graphics, photography, holography, letterpress, and lithographic printing but also illustration, animation, and graphic design... In no area of activity are the enormous philosophical, aesthetic and technological advances made during this time more apparent that within the Faculty of Communication. As we approach the final decade of the twentieth century we are looking for students with great commitment, vision and ability to join us in this fast-moving and flexible faculty."[57]

At present most communication designers in Pernambuco are working in graphic design[58] presumably due to the emphasis of the UFPE course in such area. Other rich and fascinating media have been neglected. Any change of the course's name should be of philosophical kind in that it should open tha doors for a number of communication design careers. I believe that my arguments will be quite easily

---

[56] In the **RCA, Prospectus 90-91**, the Faculty of Design for Communication (former faculty of Communication) offered the following professional courses: animation, film direction, film production, design for film, Graphic design, art direction, photography, holography, illustration, natural history illustration, technical and scientific illustration.(London:RCA, 1990) p.10.

[57] Dan FERN, *The RCA Faculty of Communication*, in **RCA Prospecus 88-89**. (London: RCA, 1988) p.11.

[58] This phenomenon does not happen only in Pernambuco. Gui Bonsiepe, in a letter to Design & Interiores magazine says: "Brazilian design is predominantly graphic, to me that means that in product design we are in a marginal or pre-product position." **Design & Interiores** nº 20, set. 1990, p.12

accepted, especially by the UFPE communication design teaching staff due to the fact that most of them were professionally and educationally forged in England, and therefore, are used to the terminology I am proposing. Hence, I propose to change the name of the UFPE *Curso de Programação Visual* as of now, to **Curso de Desenho de Comunicação.**

The industrial design course nomenclature

To justify my argument that the UFPE*Curso de Desenho Industrial* has to change its name to, pehraps, **Curso de Desenho de Produto,**[59] it would be enough to remember that:

(i) 'industrial' is an adjective for, relating to, or derived from a branch of commercial enterprise concerned with the output of a specific product - that is industry;

(ii) only in the late 1920's Brazilian economic progress started based on the expansion of exports of rubber, sugar, cotton, tobacco and cocoa from the North and Northeast regions. Therefore Brazilian industrial development and growth was based in the transformation industries of raw materials until late 1939 [60] ;

(iii) there is clear evidence that 'industrial design' higher education in Brazil has been a self-perpetuating anti-educative fraud; and

(iv) therefore it is possible to identify both those who have dreamed of 'Brazilian industrial design', and those responsible for the Brazilian industrial design graduate professionals nightmare of not getting a job in design, after four years spent at university being trained in something that, actually, does not exist. However, as these statements can sound very 'emotional', let us turn to the 'rational' ones.

The term 'industrial art' is peculiar to the English language. It embraces all design related to objects produced in industry, from bottle tops to aeroplanes. Together with the term 'industrial design', it has advantages over applied arts or *arts decoratifs*, which carry an overtone of artificiality or preciosity, and embraces both, more or less under 'industrial art'. In England, especially since the consolidation of the Council of Industrial Design and the 1951 Exhibition, the training and employment of qualified designers for industries has made rapid

[59] Synonyms for **product**: 1. artefact, creation, goods, invention, merchandise, work; 2. consequence, effect, fruit, issue, legacy, offshoot, outcome, result, returns, spin-off, upshot, yield.

[60] See for example Wilson SUZIGAN, **Industrial Brasileira: origem e desenvolvimento** (São Paulo: Brasiliense, 1986).

strides.[61]

In a narrower sense the word 'design', particularly in such phrases as 'industrial design', is used with special regard to the requirements of appearance and it has in mind the improvement of marketability by imparting an attractive appearance or one in line with current fashions within the margins of variation imposed by the requirements of use and economy. [62] That is one of the reasons why most of the design writers from the sixties and seventies e.g, David Pye and Gillo Dorfles and in Brazil Joaquim Redig, took the part for the whole, that is to say they considered 'Industrial Design' as 'Design', because 'design', in its widest sense, connotes the planning of any artefact whether for use or show, according to Osborn. This is an opinion which Peter Green also shares when he expresses his ideas about the industrial designer.

"In this context let us think of the industrial designer as a person who designs for industry - any industry, from textiles to advertising and from furniture to publishing and fashion."[63] The Brazilian Joaquim Redig would endorse that statement. However Green goes on to say: 'The industrial designer does not make the product; he works with other people in a production team contributing his skills in terms of the shape and appearance of the product, and an understanding of the users' requirements. Generally to do this the [industrial] designer must leave his home and join others in a design office. He may be employed fulltime by one industry or company, or he may have his own office and act as a freelance consultant to a number of companies.'

John Heskett, another respectable British design writer, in his turn, says: 'Industrial design is concerned with the vast array of goods manufactured by serial - or mass production methods. The profession of industrial designer emerged in the twentieth century and can be seen as a feature of the division of labour and specialisations characteristic of large scale modern industry ... Modern practice for industrial designers generally falls into two broad categories, when s/he is either a direct employee of an organisation and designing exclusively for it, or an independent consultant commissioned to design for a variety of clients... The scope of the history of industrial design, is obviously close linked to the development of industrialisation, and much depends how that term is interpreted. It is most commonly associated with the introduction of mechanisation, mainly steam-power, and large scale manufacturing and commercial organisation, which gathered momentum from the late

[61] See Harold OSBORN(Ed.), op.cit., p.579-80.

[62] Ibidem, p.312.

[63] Peter GREEN, **Working in Art and Design** (London: Batsford Academic and Educational, 1983) p.89.

eighteenth century, the period of Industrial Revolution."[64]

Penny Sparke, from the Royal College of Art, in her book *Design and Culture*, quotes McConnel:'The modern industrial designer has both a technical and a cultural background and a sense of the public into the bargain and it is these three things which qualify him to perform his job of creating sales.'[65] Sparke warns that: "This description of modern industrial design, written in 1936, focuses on his synthetic character, explaining that he is not just an artist, or an engineer, or a market researcher, but rather a combination of all three. It goes on to say that the world of commerce both created him and justifies his existence."[66]

Nevertheless, why change the adjective 'industrial' to 'product'? Because a "product must not only be capable of realisation through manufacture,[67] but in its very nature must respect all the human and economic constraints that surround production and effective distribution. This may be obvious in the case of product and communication design."[68]

Therefore by changing the name of the UFPE industrial design course to 'product design course', we are philosophically and educationally assuming that our product designers shall enjoy the freedom denied to industrial designers, although this shall limit the scale of their work. On the other hand, however, they shall experience much more in the way of form-giving due to the richness and diversity of our manual and semi-mechanised means of production of artefacts.

By changing the present name to **Curso de Desenho de Produto** (Course of Product Design) we would, first of all, be coherent with our mother tongue in that such name could describe the scope and objectives of the course and yet be formed with Portuguese words. In addition, as I have stressed earlier in this work, a significant part of the population in the Northeast region of Brazil is involved with manual and semi-mechanised means of production and artefacts, whether as creators, producers, traders or consumers. It does not imply, however, that there not exist fully mechanised industries in the Northeast. On the contrary, the region has some important sectors of the production of food, textiles, among others. Therefore, the name *Curso de Desenho de Produto* would be rather coherent with the characteristics of the

[64] John HESKETT, *Industrial Design.* In Hazel CONWAY (Ed.) **Design History: a students' handbook.** (London: Allen & Unwin, 1987) pp.110-33.

[65] P.McCONNEL, *SID-American hallmark of design integrity*, **Art and Industry**, vol.47 (1949), no.4, p.84

[66] Penny SPARKE, op.cit., pp.94-107.

[67] **Manufacture** [From Latin 'mano', (hand) + 'factura' (made)]. Manual work; work made by hand; large industrial establishments which applies also manual work.

[68] Norman POTTER, op.cit., p.46.

Northeast material culture in that it would not anticipate the production process, which is varied and heterogeneous, but would emphasise the object of the production in its cultural, economic, functional role for the Northeast population as a whole.

The teaching of product design, then, should not be based on the premise that students would be ultimately engaged directly in the business of large-scale production. In contrast, it should encourage students to operate in small studios/workshops, when possible their own, designing, modelling, and testing the full size details of their projects, and perhaps learning the business of design management, marketing and distribution, and exploring alternative strategies of practice. The products designed by the students may not invoke the interest of manufacturer/industrialists in the long run and, if student designers reach the domain of their own creativity, craftsmanship, technology and self-confidence, they may even consider the possibility of initiating a small serial production on their own. For that, the UFPE *Curso de Desenho de Produto* should accentuate the teaching of modelling with varied materials in order to train a student that Potter would call 'artisan designer', rather compatible to the Northeast cultural, economical and political circumstances.

The RCA Faculty of Design for Manufacture, for instance offers a large number and wide range of courses which include architecture, interior design, furniture making, industrial design, industrial design engineering, design management, vehicle design, ceramics, glass, fashion design, textiles design, metalwork, jewellery, and even embroidery. "The great benefit of the new course structure is the opportunity it gives for students to utilise the various course groupings; textiles and fashion; architecture, interior design and furniture making; industrial design, design management and vehicle design... The Faculty ensures students will have *wider design opportunities and more structured and dynamic programme*"[my italics].[69]

One can argue that the UFPE Product Design Course teaching staff would not be able to cope with such a large number of design careers, and this may be regarded as truth if the present structure of the course is maintained. Nevertheless, as the present ESDI's directorship puts it, 'having the school as an open space to accept, develop and change its structure according to the students' desires, needs and manifestations, it becomes easier to cope with diversity and provide students with rather ample opportunities and experiences.'

In order to achieve that goal, it is necessary, to start with, to

[69] John MILES, *The Faculty of Design for Manufacture.* In **RCA Prospectus 90-91** (London: RCA, 1990) p.28.

indicate semantically that the UFPE **Cursos de Desenho** (Design Courses) are open in terms of Design Careers and consequently, kin to manual, semi-mechanised, and fully mechanised production means. With this structure, the **Curso de Desenho de Produto** (product design course) includes industrial design and the **Curso de Desenho de Comunicação** (communication design course) includes graphic design.

However, the discussion, analysis and implementation of the changes in the UFPE design courses' names becomes difficult due to two facts: (i) in August 1989 Brazilian designers established, through their 'Designers' Professional Regulation Bill', that there are only two design professional activities: 'design *industrial*' and 'design *gráfico*' ; and in 1988 the Ministry of Education recommended a new industrial design national curriculum which was planned for the training of 'product project' and 'visual programming'.

In such a confusing Brazilian design terminology it is still possible to apply the design language model presented in Chapter IV as a first step towards helping the evaluation of the present UFPE design curriculum, and check the appropriateness of the nomenclature proposed in this chapter to the UFPE design courses.

Evaluation of UFPE Design Courses Curriculum

According to Lee Cronback[70] there are three types of decisions for which evaluation of curriculum is used:

(i) deciding what instructional material and methods are satisfactory and where change is needed;

(ii) judging how good the school systems is, how good individual teachers are, etc.; and

(iii) identifying the needs of students for sake of planning their instruction...[71]

Regarding the first two I have already presented some of these aspects in Chapter IV and in the beginning of this one. However, with regard to the 'decisions about individuals', I have commented too little so far. But firstly we should bear in mind the following idea: "Every school lives in dependency on its students for its very experience. The school is assembled and structured to offer its students the things that

[70] Lee CONBACK, *Course improvement through evaluation*, Teacher College Record 64;1963, pp. 672-683.

[71] Adapted from the quotation used by Laurence STENHOUSE, **An Introduction to Curriculum Research and Development** (London:Heinemann, 1975) p.89.

they themselves hope to acquire."[72]

An average of 50 students have entered both UFPE design courses each year since 1972, but as has been mentioned before, only a few have the opportunity to become a design professional after graduation. In the particular case of the product design course, from the almost 500 undergraduates who initiated their courses, only 50% got certificate, and there is an optimistic estimation that almost 10% are working in something related to design.

It would be important here to expand in more detail on the nature of the students condition when they reach a place in a university design course. The selection of candidates is made by a drawing test and after in a large public contest called *Vestibular.* Qualifications in Craft, Art or Technology are not required to attend the design courses. The majority of UFPE design students are female, come from the Recife's upper and middle social classes, and their parents usually have a high degree professional career. Even coming from the more privileged social strata, many students arrive on the courses severely lacking not only in basic design skills, but unfortunately, also exhibiting characteristics not conducive to the development of a good design ability, for instance:

(i) knowing nothing about their own intellectual and creative power;

(ii) showing negative feelings such as fear (afraid of getting bad marks in exercises, so they do what the teachers want them to do), are not self-confident, are shy and lazy;

(iii) having some level of dyslexia, dysgraphia and dysphonia (knowing very little about how to communicate orally their ideas), and;

(iv) being indifferent to the general problems of the nation and especially about the Northeast.

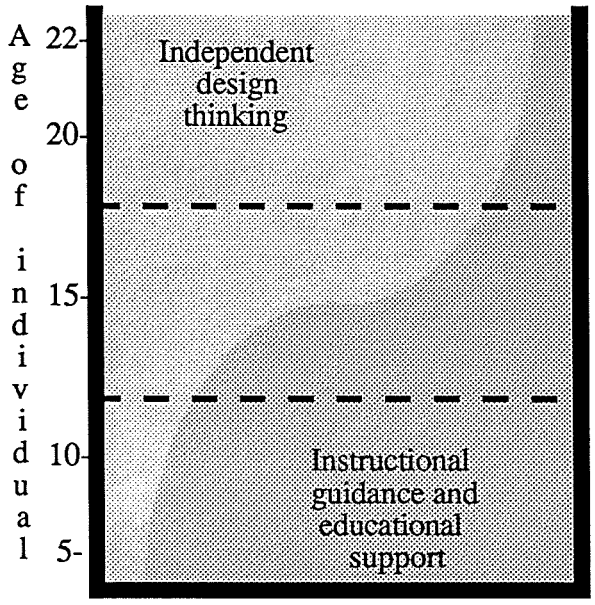
Explanations for all of that are complex and involve the evaluation of the Brazilian educational system as a whole, which is not the objective of the present work. Unfortunately, Brazilian students reach the universities each year even more immature, doubtful and sceptical. It has been proved inefficient, however, to blame only the students' inexperience and ignorance for the poor results in the courses and not challenge the teaching style itself. I believe that where the UFPE design students are concerned there are actions that might be taken in order to improve their condition. I would mention here as a matter of concern, for example, the general tendency among teachers towards disregarding the students' lack of previous experiences with design when design problems are proposed. The betterment of students' achievements

[72] Geraldina Porto WITTER et alii, op.cit., p.71.

should be teachers' priority, and for that, it would be invaluable that teachers not forget that problem-solving as a teaching strategy should not be in a vacuum devoid of resources and cultural references.

Accordind to Kimbell, if you set a student a problem in an area which s/he has no experience and therefore no knowledge, the inevitable result will be confusion and frustration for the students. In trying to overcome this confusion the teacher should be constantly talking with students on an individual basis, hinting, guiding, suggesting and generally attempting to expand their constructional experience but only on the basis of the student's own thoughts and ideas.[73]

For a student to be grown into the design experience it is crucial the gradual development of his/her self-image, self-confidence and self-expression. One can assume that the role of the design teacher is central to such a healthy development. The diagram below, suggested by Kimbell, shows a model of the ideal relationship that should exist between design teachers' support and instructional guidance, and students' development of independent design thinking throughout their formal education.

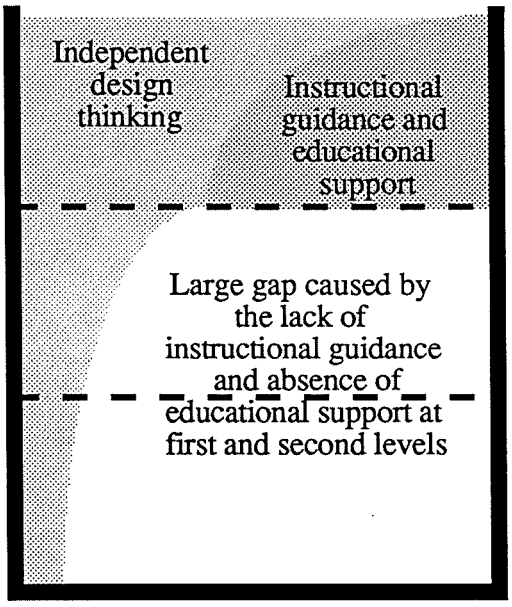


Model A

In the Brazilian case the model above is entirely different. Although we have, at least at official level, Artistic Education in primary and secondary education, rare are the schools which in fact offer the basic required conditions for that sort of education. To help to visualise what I mean, I have adopted the Kimbell's model to the context

[73] Richard KIMBELL, **Design Education: the foundation years.** (London:Routledge & Kegan Paul, 1982, reprinted 1986) p.14.

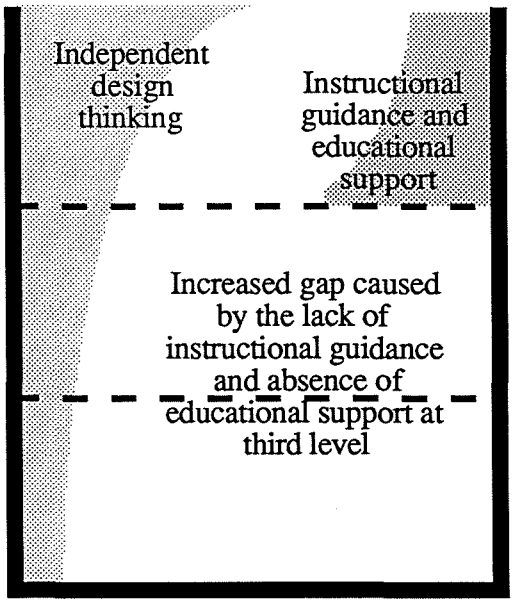
of existing primary and secondary design education in the Brazilian schools and in the deficient, precarious and irresponsible way in which educational policies, schools heads, and art teachers are dealing with that matter. I have already witnessed that unsatisfactory situation both during two academic years working in the late primary level, and as supervisor of product designing exercises at the UFPE itself. Students clearly display the negligent way in which they had their independent design thinking developed, and as Souza, the present director of ESDI, put it in an interview in 1985, students need 'to be fully trained in the most fundamental aspects of a designer's background.' As a response to the recognition of the students' lack of knowledge and experience, however, there is a tendency towards inflating the curriculum with more disciplines in a search of filling the gaps of the students' background. I am convinced that the recovery of the students condition will only be achieved by a fundamental transformation of teaching approaches and strategies which should go far beyond curriculum changes, but have an accent in the reorientation of Brazilian design education towards students needs. Until mid-1988, however, if we had applied Model A to the UFPE industrial design course, for instance, it would appear as represented in Model B.



Model B

In spite of the fact that, at that time, UFPE industrial design students having a two-year foundation course before students have their first exercises experiencing design, the knowledge and skills acquired in those two years was disassociated from the design practice of problem

generation/ modelling/solving. That is to say the foundation course instead of helping students, confused them. So it was up to the Project disciplines tutors to make all the effort to forge the connections between the acquired knowledge and skill with the practice itself. However, sometimes we try to update and upgrade to the maximum the student's design experiences, suggesting exercises with themes unsuitable and incompatible with the student's background. So, we usually fail dramatically! The Model C gives an idea of how that design education gap is increased.



Model C

Nowadays, with the introduction of the new syllabus in industrial design, where now there are disciplines of *Projeto* (Project in Design) through the whole course, it is possible that this situation no longer happens. But paradoxes, like that one shown in the Model C, indicate mainly that both tutors and pupils have no knowledge at all about the importance of 'visual education'. And without visual education, basic design, visual methodology (as it was called in the HfG), or non-functional projects (as Bonsiepe used to call it[74]), it is hard to develop designerly ways of learning: the simple drawing, the geometry, the perspective, the single method for art appreciation, the education through art, or the simple design lessons centred in the design students visual education needs. None of this happens systematically and in an innovative way. Therefore the problems of design education brought to the university start with the lack of the students' expression and

[74] See for example Gui BONSIEPE, *3-d Non Functional Projects*, in Kirti TRIVEDI, **Readings from Ulm** op.cit.,pp.195-207.

perception development. Thus, the following question arises: how can a design undergraduate students carry on and develop their projects in design if they do not have enough training in design language 'grammar'?

According to Viktor Lowenfeld[75] everything related to the representation of the students external world through visual imagery, where the objective is to develop the realistic and impressionist sides of form and colours, and also the projection of the students' interior world by means of symbolic imagery, where the objective is to develop the symbolic and expressionist aspects of form and colours, are two aspects of the visual perception which needs to be worked out in the individuals. Vernon, Arnhein, Piaget and the Gestalt psychologists are, according to Macdonald, those who face the perceptive development of form, lines, colours and space by scientific means, that is to say more informative for art and design teachers.

The studies in child psychology, say that the training of children in the basic level of schooling must be based on two aspects: stages of the visual development; and types of expression and perception. Lowenfeld and Lanbert Brittain in "Creative and Mental Growth"(1947), had already detected as the stages of children's 'visual development': "Scribbling (2-4 years); Preschematic (4-7 years); Schematic (7-9 years); Drawing Realism (9-11 years); Pseudo-Naturalistic (11-13 years); and The Period of Decision (adolescence)."[76]

From that sample anyone interested in becoming aware of the complexity and importance of such a matter, will need to start understanding that terms such as 'visual grammar' and 'visual elements' are the key to understanding the contemporary concept of 'visual education'. And remember that these terms were already the main points of a precise analysis of the visual phenomenon so advocated, for instance, by Kandinsky, Klee, and Itten in the Bauhaus; Bonsiepe, Maldonado, Schmitz, Huff, and Froshaug in the Huchschule für Gestaltung; Poovaiah, Rao, and Athavankar in the Industrial Design Centre; Asakura in Japan; Green, Joicey, and Palmer, in England; Ostrower[77] in Brazil; and even Andrade[78] and Montenegro[79] in the UFPE Department of Design.

---

[75] Please see Viktor Lowenfeld, The Nature of Creative Activity (London: Routledge & Kegan Paul, 1965, 2nd. Edition).

[76] Stuart MACDONALD, op.cit., p.373.

[77] Fayga OSTROWER, **Universos da Arte**. (Rio de Janeiro: Editora Campus, 1983).

[78] Manoel Caetano Queiroz de ANDRADE, **Educação pela Criatividade**. (Recife: UFPE, Editora Universitária, 1987)

[79] Gildo MONTENEGRO, **A Invenção do Projeto**.(São Paulo: Edgar Blücher, 1987)

Although the literature about debates concerning the issues of visual awareness is widely available, the Brazilian industrial design curriculum (approved on 20.06.87, and in force since 1988), regrettably, overlooked those approaches, did not become more realistic in its approach neither is it more modest in the quantity of disciplines proposed. Therefore, in my final analysis, I consider that it is a nonsense to criticise the curriculum itself or suggest modifications to it. Instead I prefer to consider that curriculum as being a vocational curriculum, for high design education, ignoring the restrictions suggested by its name - industrial design - and the design careers for which it is proposed to be useful - product project and visual programming. My intention is not to criticise either the National Industrial Design Curriculum, or less still the UFPE design syllabuses. All I intend to do is to suggest a model, based on the design language structure, to be used as a discernible framework for the design of a curriculum and syllabus. My research have shown, however, that it is not the inclusion of a wide variety of subjects in the syllabus that will fill the gaps of the students' background. What we essentially need to offer the students is a philosophically coherent course. Such coherence lies on the best possible use of UFPE potential.

The Brazilian "Currículo Mínimo[80] para o Curso de Desenho Industrial" (National Industrial Design Curriculum) is intended to be useful towards the training in the two qualifications *Projeto de Produto* and *Programação Visual* and is composed of the following subjects:

Basic Training - mathematics; experimental physics; two dimensional representation; and three dimensional representation.

General Training - history of art and technology; notions of economics; social sciences; legislation and rules.

Professional Training - visual methodology; theory of communication; project methodology; ergonomics; industrial materials; production*[81] ; mechanics systems*; development of product project* ; graphic materials and processes**; graphic production and analysis**; image production and analysis**; development of visual communication project.**

The basic programme of those subjects are the following:

Mathematics - differential and integral calculus; vectorial calculus;

[80] In Brazil **currículo mínimo** (curriculum) is the expression used to mean the group of educational experiences established by the Federal Education Council for a higher course. And **currículo pleno** (syllabus) is the expression used to mean the total educational experience teaching required by the higher level institution towards the fulfilment of a higher course.

[81] The subjects marked with (*) are related only to Industrial Design Course and the subjects marked with (**) are related only to Visual Communication Course.

numeric calculus; probability; statistics.

Physics - (experimental physics) physical measures; liquids and gases; thermodynamics; electricity acoustics; optics; (mechanics) machinery elements; composition of mechanic systems.

Means of Representation - (two dimensional) studies of expressive materials using: observation drawing; expression and live model; geometry descriptive; perspective methods; geometrical drawing; technical drawing; photography; (three dimensional) studies of techniques of expressive materials using; physical models construction and testing; transposition of model results into reality.

History - history of art; history of technology; history of industrial design; history of Brazilian industry.

Notion of Economics - notions of macroeconomics; inflation and economic development; notions of microeconomics; production and marketing studies; industrial costs.

Social Sciences: cultural anthropology; sociology of human relationship, psychology of perception.

Legislation and Norms - fields and the way of professional performance; ethics and law problems of the profession; ruling bodies; international patterns, rules and codes.

Methodology - (visual) study of form, texture, colour, structure; elements of graphic analysis; (design) techniques of analysis of the necessities; techniques of research and data collection; identification of material and tools of projecting; techniques of creativity; techniques of design management; design methods.

Theory of Communication - semiology; communication processes; theory of information; means of information transmission.

Ergonomics - man-made systems; labour physiology; anthropometry and biomechanics; work environment; research techniques.

Production - (materials) science of material elements; technology of materials in mechanical construction; resistance of materials; (production) metrology; standardisation; surface finishing; production processes; processes of material technical treatment; production and cost programming and control; (graphic materials) printing, engraving and other materials and processes; industrial covers and finishing; graphic production and costs methods for planning and control; (graphic production) graphic and typographic processes; graphics finishing; photoproduction; topology; graphic language; layout; grids, pagination; and art work; (image) resources and and language of photography, film, animation, audiovisual, and television.

Product Project and Visual Programming Project - practice and

execution of projects in design.

As far as I am concerned, and knowing the areas of study, research and interest of the UFPE design teaching staff,[82] I wonder how we will cope with such a quantity and variety of disciplines, if we do not have design teachers trained to relate maths, physics, sociology, or economics, to design. It was only in 1990 that a new ergonomics teacher was contracted. We will have to resort to other UFPE departments or centres, and ask for help. However that means that the approach to those disciplines will not be design-related, and so it will not be surprising if the teaching of those subjects is less effective that it could be. It may be considered waste of time in that the teachers are not aware of the design students needs and are not trained to meet such needs either. It is expected that the students make the necessary connections between what is being taught and the requirements of their courses. However, due to the characteristics of the whole Brazilian educational system, students are not prepared to have critical thinking and are not self-oriented. As we saw earlier in the diagrams which represent the relation between Independent Thinking and Educational Guidance, the lack of the latter does not increase the former, i.e., it does not bring self-confidence to the students. On the contrary, it brings confusion and frustration.

The National Design Curriculum's final document indicates that those subjects can be arranged in any sequence, as well as that they can be unfolded as to whatever disciplines each school requires to attend to the local and regional needs. However, it seems that according to the UFPE design courses syllabuses that aspect - local and regional needs - was not considered. At first sight the subject titles of the UFPE design courses syllabuses, are very eclectic. But let us see what the figures say.

Each course has a total of 2,910 hours/class: for the Product Project Course, 1,312 h/class of theoretical disciplines (45%) and 1,598 h/class of practical disciplines (55%); and for the Visual Programming Course 1,292 h/class of theoretical disciplines (40%), and 1,618 h/class of practical disciplines (60%).

If we divide these disciplines into areas of knowledge, we have: for the Product Project Course - 480 h/class on Science (16%); 720 h/class on Humanities (24%); and 1,780 h/class on Design (60%). And for the Visual Programming Course 120 h/class on Science (4%); 810 h/class on Humanities (28%); and 1,980 h/class on Design matters (68%).

[82] These were until 1989, the UFPE design teaching staff areas of interest, study and research: - Legibility of children's books; illustrations for didactics books; vertical signing legibilty/typography. - Origins of modern typography in Brazil/ history. - Graphic evolution of the income tax forms in Brazil/graphic analysis. Bionics/ design bibliography. Bionics/industrial design engineering. Technological innovation /design school and professional management. Design education/ creativity, history. Ergonomics.

I optimistically estimate that the UFPE design teaching staff is trained and qualified to cope with only 1,950 h/class (67% of the whole product project course last), and 2,010 h/class (69% of the whole visual programming course) based on their titles, background, work regime, and their main areas of study, research and interest. And that means that of the 2,910 h/class of each course, 33% and 31% of the design education time for the product project students and visual programming students respectively, are misused. One clear example of the discrepancy between the ambitions of the curriculum and the actual capabilities of the UFPE design courses, is the existence of the subject called *Editoração Eletrônica* (DeskTop Publishing) in the Visual Communication Course. In this subject the students are supposed to experience and learn about CAD, and yet there are insufficient resources[83] in the Design Department to provide such training. It is unquestionable that design students of today must know about, be aware of, and, when possible, learn how to use computers as a tool for their work. It is the part of courses' organisers, however, to choose the best strategies to provide the students with such an experience. Sometimes it may be more realistic to organise seminars on an specific topic rather than offering regular classes on a subject from which the students can hardly benefit.

Before applying the model of the Design Language Structure, proposed in Chapter IV, to evaluate to present UFPE Design Curriculum, it would be helpful for the reader understand and compare the figures next presented to have in mind: (i) the lack of design education in the Brazilian primary and secondary schools; and (ii) what the United Nations Educational, Scientific, and Cultural Organization,UNESCO recommends to be considered in a industrial design curriculum - at least 50% of 'Project Disciplines'; around 30% of 'Practical Disciplines; and 20% of 'Theoretical Disciplines'.[84] However, let me first to transform the syllabuses of both Product Project and Visual Programming courses into a UFPE Design Courses Curriculum: to sort out the disciplines of both courses by areas of knowledge, and to present the total of hours needed to fulfil each of them (see Table I); to group these disciplines into subjects, and sort them out according each stage of the design educational programme (see

[83] There is only one computer available to attend the both design courses at UFPE - "Itautec I7000". However we can count already on two researchs which are being developed in São Paulo - BR (Ana Magda A. Correia, **Perspectivas de Superfícies Poliédricas Auxiliadas por Computador**. Escola Politécnica da Universidade de São Paulo), and other in Leicester - UK (Angela Rocha Silva, **Introducing Desktop Publishing**. Leicester Politecnic).

[84] Quoted by Joaquim Redig, *Para o Ensino do Design in Brasil*, op.cit., p.109.

Table II); and to present a table where it is shown the UFPE Design Curriculum with the average percentage time of each subject composing it (see Table III).

Table I

Product Design		Communication Design	
Science		**Science**	
Mathematics	60h	Mathematics	90h
Calculus	60h	Visual Ergonomics	60h
Geometry	120h		
Experimental Physics	60h		
Ergonomics	120h		
Mechanics	60h		
Humanities		**Humanities**	
Anthropology,	60h	Linguistics Anthropology,	30h
Professional Market,	60h	Linguistics,	60h
History of Modern Art,	60h	History of Modern Art,	60h
History of Science & Technology,	60h	History of Typography,	120h
History of Industrial Design,	60h	History of Industrial Design,	60h
Methods of Studying,	30h	History of Visual Communication,	60h
Legislation and Rules,	30h	Methods of Studying,	30h
Theory of Communication,	120h	Theory of Communication,	120h
Techniques of Writing,	120h	Techniques of Writing,	120h
English Language,	120h	English Language,	120h
Studies of Brazilian Problems,	30h	Studies of Brazilian Problems,	30h
		Professional Practice,	60h
		Legislation and Rules,	30h
		Studies of Brazilian Problems,	30h
Design		**Design**	
Introduction to Product Research,	60h	Introduction to Visual Planning,	60h
Product Project,	360h	Visual Project,	360h
Product Research &Development,	270h	Visual Planning,	270h
Industrial Production,	180h	Graphic Analysis,	120h
Analysis of Products,	180h	Visual Methodology,	180h
Observation Drawing,	90h	Observation Drawing,	180h
Technical Drawing,	90h	Graphic Production,	360h
Visual Methodology,	120h	Geometrical Drawing,	60h
Techniques of Representation,	240h	Systems of Representation,	240h
		Desk Top Publishing	60h

Grouping these subjects into main disciplines and summing the hours needed to fulfil each of them we have the the following configuration.

Table II

UFPE Product & Communication Design Curriculum

Basic Training	
Mathematics General, Calculus, Geometry.	300h
Physics Experimental Physics, Mechanics.	120h
Basic Design Visual Methodology.	240h
Drawing Observation, Geometrical, Technical.	510h
Modelling 2D & 3D Systems, and Techniques of Representation.	480h
General Training	
Anthropology General; Linguistics.	90h
Marketing Professional Job Market, Professional Practice.	120h
History Art, Science & Technology, Design, Typography .	480h
Sociology Studies of Brazilian Problems.	60h
Professional Training	
Communication Theory; Studying Methods, Writing Techniques, Linguistics, English Language.	840h
Manufacture Legislation and Rules, Product and Graphic Analyses, Industrial and Graphic Production.	960h
Project Introduction, Researching, Planning and Developing Designs.	1380h
Ergonomics General, Visual.	180h
Computer Aided Design and Drawing Desk Top Publishing.	60h

Having summed each total of hours required (2,910h) to fulfil one of the UFPE design curses as 100%, I have built Table III to help visualise how these disciplines are organised and what it is the percentage of each one in the whole UFPE design curriculum. From that table we can note that: (i) 10% of the total hours of the curriculum belongs to the area of Science; (ii) 27% of the disciplines are in the field of Humanities, and; (iii) 63% belongs to the area of knowledge Design. At first sight these figures seems to be well balanced. But when we note that only 4% is dedicated to Basic Design, and that only 46% is related to a practical disciplines, that figures are alarming.

Another importante analysis that we can make from Table III is

related to the percentage of time spent in each stage of the UFPE design educational programmes. For instance 29% is dedicated to Basic Training disciplines, 13% to the General Training, and 58% to the Professional Training.

Table III

UFPE Product & Communication Design Curriculum

Science		Humanities		Design	
		Basic Training			
Mathematics	5.0%	----------		Basic Design	4.0%
Physics	2.0%	----------		Drawing	9.5%
----------		----------		Modelling	8.5%
		General Training			
----------		Anthropology	8.5%	----------	
----------		Marketing	1.0%	----------	
----------		History	2.0%	----------	
----------		Sociology	1.5%	----------	
		Professional Training			
Ergonomics	3.0%	Communication	14.0%	Project	24.0%
----------		----------		Manufacturing	16.0%
----------		----------		CAD	1.0%

If the UFPE design curriculum is analysed under the light of aspects such as (i) the lack of design experience of university design students caused by the absence of design education in Brazilian schools; and (ii) the UNESCO recommendations for a balanced design curriculum, the only valid conclusion is that the UFPE design curriculum is presently unbalanced.

With reference to the first aspect, the UFPE design curriculum does not provide students with the necessary basic design training, i.e. the 4% of hours/class dedicated to it is certainly not sufficient to give the adequate basis for the development of future more complex skills of the design activity. In addition, if the UFPE design curriculum is compared with UNESCO recommendations its unbalance becomes even more evident: (i) whereas the UFPE design curriculum offers 54% of Theoretical Disciplines such as sociology, marketing, anthropology, communication, manufacturing, mathematics, physics, ergonomics, DTP, history, the UNESCO recommends only 20% of them; (ii) Practical Disciplines such as basic design, modelling and drawing, reach a total of 22% hours/class when 30% are suggested; and (iii) only 24 % hours/class of Project Disciplines, i.e. designing, are provided by in the UFPE design curriculum against the 50% advised by the UNESCO.

If, on the other hand, the UFPE design curriculum is analysed under the light of the Design Language Structural Model, presented in Chapter IV, its unbalance will become particularly perceptible when subjects concerned with the notion of Pragmatics are concerned.

In order to reach a better understanding of the notion of Pragmatics, I found it necessary, initially, to establish three main groups in which the theoretical subjects of the UFPE design curriculum would be arranged: Manufacture; Communication; and Critical Studies. The objective of this was the classification of theoretical subjects according to the subjects function to the design learning process: Structural; Information and Connotative Functions. Therefore, the subjects selected were classified according to their relevance for the creativity, communication skills and awareness of the design students.

(i) Manufacture - consisting of the subjects which enable students to develop their capacity to foresee a whole sequence of their creation. And to act so they must have as a basis the whole body of previous theoretical knowledge acquired about how things are brought about;

(ii) Communication - encompassing the subjects which help students to understand the relationship between the signs used by them and by others in order to transmit ideas and achieve intended purposes;

(iii) Critical Studies, embracing those subjects related to the students' knowledge and awareness of their historical, cultural, economic, political and environmental context and of that of designs.

According to testimonies in Chapter III, however, teachers of those subjects in the UFPE design courses have not been able to properly relate theoretical subjects to Design and therefore the subjects are having limited relevance to the students design learning process. Furthermore, as we saw in the previous Tables, theoretical subjects take an excessive percentage of the design courses total time (around 35% hours/class). In my opinion, the distribution of subjects in the courses timetable should also consider and emphasise other notions of the Design Language e.g. Medium of Transmission, Semantics, and specially Grammar. In other words, the subjects which I grouped in the notion of Pragmatics could be rather useful for the UFPE design education if they were objectively treated in specific lectures, seminars or debates by experts and professionals of those theoretical fields. The way in which those subjects are presently taught, i.e., in formal classes, is not flexible enough to meet the students needs in terms of information.

In the notion of Medium of Transmission I grouped the subjects related to the Craft, Art and Technology Levels: modelling, drawing; DTP, maths, physics, ergonomics. Here again the problems are evident:

(i) no discipline related to the Art Level; (ii) only 18% hours /class of disciplines related to the Craft Level; and (iii) only 11% of technological disciplines because UFPE lacks in computers, and ergonomics laboratories.

In the notion of Semantics I arranged the subjects of history (8.5% hours/class) in the Lexicon Level, and project designing (24% hours/class) in the Material Discourse Level. Apparently this notion seems to be fine (around 32.5% hours/class). I mean apparently because it is not known the context of those disciplines.

The notion of Grammar, it seems, is that which deserved least attention from the curriculum planners. The UFPE design curriculum dedicated only 4% hours/class for basic design in the Morphology Level; and no attention for the Syntax Level. From that we can induce that the curriculum planners miscalculated or assumed that students have some kind of previous design education, fact which it is not true.

The diagram below tries to show how subject centred the present UFPE design curriculum is, and indicate that it is far from attending to the the students' needs.

Table IV

Design Language

Usage: Product Project and Visual Programming

Pragmatics: 34.5%

Structure: 65.5%

Grammar	**Medium of Transmission**	**Semantics**
Morphology Level	Craft Level	Lexicon Level
4.0%	18.0%	8.5%
Syntax Level	Art Level	DiscourseLevel
-----	-----	24.0%
	Technology Level	
	11.0 %	

My assessment of that picture can be summarised saying that the UFPE design curriculum seems to be incompatible (and likely ineffective) with the reality of Brazilian educational system. As a starting point for further useful discussion and assessment of this model,

I would suggest some recommendations based on Ken Baynes[85] ideas about design curriculum planning, which I consider to be paramount towards a design curriculum Brazilian student needs centred.

First it is convenient to look at the importance of the Design area of knowledge as a cross-faculty with Humanities and Science:

Humanities: Design is about culture. The archeological, anthropological expression 'material culture' gives a degree of breadth which appears to be suitable to general education. In this sense, design can hardly be effectively handled without a general liberal background of knowledge and experience. Humanities contain specific areas of knowledge and activity which are important in more specific sense e.g. History, Geography, Home Economics and Languages.

Science: As in the case of Humanities it is impossible to imagine design being effectively handled in school without a background of mathematical and scientific experience and technique. Scientific investigation impinges on design in exactly the same way: the existence of scientific methods is of general cultural importance while the knowledge it has produced helps to define the reality of the world in which material culture is created and exists. Science also contains areas of specific importance e.g. Mathematics, Physics and Chemistry, providing objectives means for understanding the forces involved in natural and man-made systems.

Design: In the elements of a design curriculum it is reasonable to envisage two main streams of activity going on side by side. The first, a series of open-ended projects of ever increasing depth and sophistication, carefully related to the developing maturity of students and their teachers. The second, a range of more formal activities covering the areas chosen from design's body of knowledge e.g. Design Taxonomy, Design Metrology and Design Axiology.

Having these points in mind we can now provide some suggestions about how to organise the specific subjects from these three areas of knowledge according to our Design Language Structural Model:

1 - GRAMMAR NOTION

Morphology Level - subjects providing students with a grammar of form, giving them a vocabulary, or alphabet of form which could be used to create assignments. And where non-applied exercises revolved around pure formal explorations and skills training, and soon, providing them with general designing tools for handling specific design

[85] Ken BAYNES, **Introductory Paper: Towards Design Curriculum** (London: Royal College of Art, Design Education Unit. Short Courses in Design Education 1977-78) 12pp.

tasks later.

Syntax Level - The study of Design Methods and Processes. Theoretical processes of designing and making were introduced in order to provide students with a series of clearly recognisable stages to a neat solution which have bundled the sensibilities, insights, methods and approaches that designers have developed over the years plus the range of critical and analytical studies directed at the history and understanding of design in society. It is necessary to teach that there are always possibilities of refinement, of arriving at a solution by a better route, or adapting the original intention in favour of a simpler and more effective technique.

2 - MEDIUM OF TRANSMISSION NOTION

Craft Level - Although the skill aspect of craft has been denigrated in the immediate past, an understanding of the nature of creative skills and the acquisition of at least some of them appears to be of central importance in any adequate design education. Crafts involve vital kinds of understanding of tool, the transformation of materials, modelling, function and aesthetics. Crafts also have a moral and ethical perspective which is important in relation to the conservation of resources and attitudes of good husbandry. Crafts not only give students the opportunity to transform materials by purposeful activity and the use of tools, creating objects of aesthetic and, where appropriate, functional value, but also it requires students to answer the question, 'how will it be made?', exercising skills of choice (of aims, materials, and tools), skills of making, and skills of passing sensitive critical judgments.

Art Level - Art plays a complex role that is deeply interwoven with design. It is central to the practical development of visual language. It provides students with a highly versatile means of expression which can cope as well as with subjective states and feelings. It is a way of understanding the world and the role of the individual in it. Art includes historical folk art, contemporary popular art and visual mass media, it is a powerful medium for handling the crucial cultural issues involved in design. Art is the means by students investigate things as they are, learning to represent them from observation and imagination; to model and communicate ideas about how things could be, and as an aid to understanding how things work - through the fundamental activities of drawing, and modelling, for example. And through the aesthetic understanding which art fosters of forms and shapes, colours, textures, signs, symbols, and other images.

Technology Level - It appears to be reasonable, in an industrial

society and in a nation trying to dependent on industrial activity, to emphasise the importance of technology and to devote a series of specific and practical studies to it. In one sense, technology, as usually is understood and taught, simply indicates the condition of craft in the modern world. and its 'end on' connection with the Science. In a critical sense, however, it is the social significance of the technological future that is important for one visualise the whole of this area of work design coming into the proposed design curriculum. Technology allows students the opportunity to answer the question, 'how will it work?', and to understand how natural and physical resources can be - and indeed have been - used to solve problems arising from human needs. Technology exercises skills of modelling, constructing, and communication, and enables students to apply scientific concepts.

3 - SEMANTICS NOTION

Lexicon Level - History is the main subject in that Level. A sense of the past which emphasises social and economic history demonstrates the interaction between material culture and environment with social and economic circumstances. Such an understanding is vital: History not only is fundamental starting point for the ability to articulate design as a social phenomena, but also it contributes a methodology. for research and significant rules about the nature of evidence and the status of facts. It offers the opportunity to analyse home, school, and other aspects of the environment through observation, maps, drawings, models etc. and by showing how natural resources (and the lack of them) have influenced our environment and material culture development, and also the technology we use; showing how other societies and cultures tackle basic problems such as food production, storage, and distribution, of shelter and settlement etc. Enabling students to appreciate the way in which past societies organised their lives and their environment, the historical basis of the contemporary environment and contemporary material culture, and its continual refinement and development.

Material Discourse Level (Study in Design or Designing) - This subject can be related to e.g. environmental, rural, urban, studies, interior design and architecture, and communication. All these areas of study contribute directly to design, and can often include a high degree of challenging and useful design activity. What it is necessary is to make room to develop the basic qualities of students' imagination, their need to think up and make things. These are qualities inherent in them, and these are the beginnings of design ability. The experience of designing contributes to the development of the individual and its part in his or

her equipment for life. It is important, that we in Brazil, who want a society dependent upon craft, art and technology, make it possible for students to be familiar with the creation and properties of man-made things and systems. Students undertaking design work will realise and confirm that they benefit from grappling with problems that have no 'correct' answer and that exercise their imagination and judgment in bringing together knowledge from apparently unrelated subjects. Providing they have a suitable foundation, they will actually be called 'designers' and so will feel their professional ability, skill and capability. However, tutors have to bear in mind that 'designers' are often not concerned solely with generating a concept, nor with aesthetics, ergonomics or technology; they can be involved with all aspects of the concept and the people responsible for its realisation, starting with research and continuing through to the support of the new design in actual service.

4 - PRAGMATICS NOTION

Design-Related Activities - It is central to my argument that UFPE's teaching staff need to understand that what is necessary in our design courses is "design-related activities", instead of the simple mechanical study of subjects which in the end will mean nothing to the students. So we need to interact with all the university's faculties, asking their help whenever we need it. The students' experiences and knowledge, and ours as well, will increase according to their needs when exposing to design places, objects and messages. We will, therefore be encouraging students to think about many other things that sometimes we cannot foresee. For instance:

Mathematics - We need to make room to develop the students' understanding of and experience in a variety of models, structures, patterns and symmetries. We must give them very different kinds of design-related activities with maths, in which they have the opportunity to enhance communication through visual presentation, to explore relationships, and to reflect on appropriate strategies for completing purposeful activities.

Physics - By encouraging the investigative approach, offering opportunities for direct experience, logical analysis, and clarification of ideas through discussion and comparisons. By allowing students to devise their own experiments and tests and to design solutions to problems in a practical way, thus blending science and technology. By developing students' understanding of the physical and mental capacities of human beings and of the way in which they interact with general physical properties such as weight, balance, energy,

structure, movement etc.

Ergonomics - making students aware that human beings like to be reasonably comfortable, have their own interests, want to be loved and feel important. Humans change a great deal during their lifetime, so it is important to know for whom you are designing.

Communication - by developing students' modes of expression, and their skills of accuracy, clarity, brevity, and sequencing, in talking and writing about their own design processes, and their experiences of places, objects and messages. By encouraging students to think about the layout of their own writing exercises, designing exercises and so on. Making them feel the experience of editing and presenting their work.

And last,but not least, the UFPE's design teaching staff need to ask themselves many questions to make further discussions useful. For instance:

(i) 'What are our attitude to students' experience of life and to the opinions and ideas which they derive from it ?'

(ii)'What positive importance do we attach to building and maintaining self-images so that individual students can develop qualities of confidence, responsibility, curiosity, tolerance and understanding?'

(iii) 'Do we value students' ideas, values and opinion enough? and how can we equate our own and students' ideas and points of view?'

(iv) 'How many times have we forgotten that students learn a great deal from each other; not only from books or from their tutors' guidance?'

(v) 'Have we ever admitted or realised that students' ignorance is superficial while our is profound?"[86]

Perhaps then we can build a much better model for the improvement between the students' design thinking development, and our design educational support and guidance, and then to redesign the whole history of Pernambuco's design education and philosophy, and who knows our product and communication designers can start contributing systematically for the material culture of the Brazilian

[86] These last recommendations were based on and adapted from the following works:

HMSO, **Curriculum Matters 9- Craft, Design and Technology from 5 to 16** op.cit.,pp.9-11.

Norman POTTER, op.cit., pp.29-31.

NSEAD, **Art, Craft and Design in the Primary School** op.cit, pp.15-24.

Design and Primary Education (London:The Design Council, 1987).

Design Education at Secondary Level (London: The Design Council, 1980) p.5-9.

Stewart DUNN, **An Introduction to Craft, Design and Technology - CDT** (London: Unwin Hyman, 1986) pp.20-1.

Northeast. All those aspects related to a design curriculum are daring tasks. However as Baynes puts it: 'The specific activity of design at its most intense forms and to show that it has relevance throughout the curriculum to the development of the area of Design'.

CONCLUSION

TOWARDS AN ORIGINAL BRAZILIAN DESIGN PEDAGOGY

In 1500, when Brazil was discovered, Pero Vaz Caminha, one of the members of the Portuguese naval expedition, wrote to his king, Don Manuel I of Portugal, saying that they have discovered a 'land where everything which is planted bears fruit'. And, indeed, this is one of the first things that Brazilian children learn about their history: the wealth of Brazilian natural resources, and the potentialities of Brazilian economy. However, despite the fact that the present figures about Brazilian economy put it in a very privileged place in the rankings of the developing countries, the Brazilian social reality does not coincide with the economic figures: most of Brazilian population lives under the line of poverty.

This paradoxical situation is not only found in the social and economical grounds, but also in the cultural one. For instance some areas of Brazilian science have received attention and financial support from the government and that resulted in their evolution and recognition. Other scientific areas and some areas of the humanities e.g. education, remain neglected and lacking encouragement for research and development. However it would be unfair to say that efforts have not been made to improve those fields, giving them original Brazilian characteristics. For instance the range of activities and ideas of Brazilian scientists between 1981-1985, have been reported in 1,498 research published papers which put Brazil in the 3rd place in the international scientific rankings of the developing countries.[1]

In the area of Design, however, Brazil seems to have still a long way to run. Only recently, with the advent of the systematic publication of the Brazilian magazine Design&Interiores, a few Brazilian design educators have had the opportunity to widespread their ideas.

Nevertheless, despite the fact that little is known about what is going on in the Brazilian 27 design high schools, and in the mind of the

[1] See: Jacques GAILLARD, *La Science du Tiers Monde, Est-Elle Visible?*, **La Researcha** (No.29, Mai, 1989) pp.636-40.

Brazilian design educators, one cannot assume that any effort was made to develop such an area of human knowledge. In the face of the disappointing fact, exposed throughout this dissertation, which display, amongst several points highlighted, that a very limited number of design students are absorbed by the job market. However, it might be more be reasonable to say, using a symbolic language, that although design education in Brazil can, and indeed bears fruit, the design seeds imported from Ulm, were not planted in good soil, and above all were planted in the wrong season. Therefore, we could assume that our harvest in the field of design education has not yet corresponded to the long time that design education has been cultivated in Brazil.

I am convinced that the little improvement in Brazilian design education, is not only related to the way in which it has been understood, conceptualised, and taught. In my opinion, Design in Brazil also: (i) lacks an original body of studies and considerations in order to group and organise the knowledge which explicitly limit the area of Design; and (ii) needs an identification and definition of a certain number of principles and theories which can be used as a basis for our educational discourse. That is to say we lack an original Brazilian Design Philosophy. I would also add, consequently, that in Brazil we do not have yet formulated interpretative schemes and interconnected systems of explanations which could express the Brazilian cultural and historical contexts, and, so, enable Brazilian design educators to seek and make their practice more intelligible for the Brazilian society. In other words, Brazil also lacks a Design Ideology. These two aspects I consider to be paramount as the first step towards the study of the principles and practice of Brazilian education in Design area.

This work can be taken, at least, as a study to help the reflections and further discussions about what we have done and thought in design education up to the present time. For instance, Chapter I, which was concerned with 'design' denotations and connotations, can be used as a basis towards: (i) the definition of an original design terminology in Portuguese language; and (ii) the identification of some basic aspects, which are closely related to the human ability of designing, and indeed may be considered in any design education programme.

Chapter II and Chapter III, those which looked at the Brazilian written and spoken discourse on Design, is truly a very significant source for design educators not only reflecting over the origin and history of Brazilian design education, design concepts, design Portuguese nomenclatures, and design curriculum; but also over how these issues, and the educational discourse, have contributed to the development of Brazilian design education as a whole.

Chapter IV, the one in which we built a design language structural model, can be positively a valuable source to base a Brazilian design philosophy and ideology. Its introduction assumes that Design is an area of human knowledge; and, therefore, needs to be considered in all levels of any educational system, together with the Humanities and Science. In my opinion this is the starting point to all Brazilian design educators to be aware that design is an inherent human ability. Furthermore, in Chapter IV a Design Language Structural Model is introduced, I am convinced, it can be a simple but effective way to match Brazilian cultural context and, therefore, the needs of the Brazilian undergraduate design students with the identification of the educational objectives expressed by means of design curriculum.

Chapter V, opens a new Design research field in Brazil: the studies about the psychological and psychomotor consequences in the individuals development due to the lack of design education in the Brazilian primary and secondary schools. And this serves as background to support the arguments presented throughout the application of the Design Language Structural Model as a basis to evaluate the present curriculum of the Universidade Federal de Pernambuco industrial design and visual communication courses.

As I said earlier, this work cannot be seen as another Brazilian manual full of dogmatics assumptions about what design education in Brazil must be about. On the contrary, this work must be seen as an effort to group together the thoughts of Brazilian design educators, throughout thirty years of official design higher education in the country, for further analyses and reflections.

Bibliography

Dictionaries, Companions, Encyclopaedias and Grammars.

CHILVERS, Ian et alii (Ed.) **The Oxford Dictionary of Art**. Oxford: Oxford University Press, 1988.

Collins Spanish Dictionary. London: Collins.

Concise Cambridge Italian Dictionary. Cambridge: Cambridge University Press, 1975.

CRYSTAL, David. **The Cambridge Encyclopedia of Language**. London: Guild Publishing, 1988.

CUNHA, Celso Ferreira da. **Gramática da Língua Portuguesa**. Rio de Janeiro: FAE, 1985, 11a. ed.(1a. ed. 1972).

Diccionario de la Lengua Espanõla. Madrid: Real Academia Española, 1970.

Dictionnaire de la Langue Française. Paris: Larousse, 1975.

Dictionnaire des Synonymes. Paris: Presses Universitaires de France, 1961.

FEIXO Xosé G. (Ed.). **Diccionario Galego-Castelán/Castelán-Galego**. Pontevedra: Ir Indo Ediciones, 1988.

FERNANDES, Francisco. **Dicionário de Sinônimos e Antônimos da Língua Portuguesa**. Porto Alegre: Editora Globo, 1974 (2a. ed.).

FERREIRA, Aurelio Buarque de Holanda. **Novo Dicionário da Língua Portuguesa**. Rio de Janeiro: Editora Nova Fronteira, 1986 (2a. ed.).

GARLAND, Ken, **Graphics, Design and Printing Terms: an International Dictionary**. London: Lund Humphries. 1989.

Grande Ditionario della Lingua Italiana. Salvatore Battaglia, Unione Tipografico, Editrice Torrinese, 1961.

HOUAISS, Antonio. **Webster's Dicionário Inglês-Português**. Rio de Janeiro: Record, 1982.

JERVIS, Simon (Ed.) **Dictionary of Design and Designers**. London: Penguin Books, 1984.

La Grande Encyclopédie Librairie Larousse. vol. 6 and 8, 1973.

Latin Dictionary. Oxford: Claredon Press, 1879.

MACHADO, José Pedro. **Dicionário Etimológico da Língua Portuguesa**. Lisboa: Editorial Confluência, 1967 (2a. ed.).

MCLEOD, William T. (Ed.). **The Collins Dictionary and Thesaurus**. London: Collins, 1987.

Michaelis Dicionário Prático Inglês-Português/Português-Inglês. São Paulo: Melhoramentos, 1987.

OSBORN, Harold (Ed.) **The Oxford Companion on Art**. Oxford: Oxford University Press, 1987.

READERS' DIGEST (Ed.) **Dicionário Enciclopédico da História de Portugal**. Lisboa: Publicações Alfa, 1990.

Oxford Latin Dictionary. Oxford: Claredon Press, 1971.

SILVA, Antônio Morais. **Grande Dicionário da Língua Portuguesa**. Lisboa: Editorial Confluência, 1945 (Décima Edição).

SWANNELL, Julia (Ed). **The Little Oxford Dictionary of Current English**. Oxford: Claredon Press, 1986, 6th. ed.(8th. reprint 1990).

TAYLOR, James A. **A Portuguese-English Dictionary**. George G. Harrop &

Co. 1959.
The Oxford Dictionary of English Etymology. Oxford: Claredon Press, 1966.
TIBIRIÇA, Luiz Caldas. **Dicionário Tupi-Português**. São Paulo: Traço Editora, 1984.
VITERBO, Souza. **Dicionário Histórico e Documental dos Arquitetos, Engenheiros e Construtores Portugueses**. Lisboa: Imprensa Nacional-Casa da Moeda - INCM, 1989 (Reprodução em fac-símile do exemplar com data de 1899 da Biblioteca da INCM).

Magazines, Journals and Prospectus.

Abhikalpa. Journal of the Industrial Design Centre (IDC, Indian Institute of Technology, Powai, Bombay, 400076, India).
Almanaque. Boletim Informativo da APDI-PE, setembro, outubro/novembro de 1990.
Arquitetura. Contemporary architecture magazine published in Rio de Janeiro by the Instituto dos Arquitetos do Brasil (Brazilian Architects Association), section of the old Guanabara State. It was first published with the name of I.A.B. Guanabara from no. 1 August 1961 to no. 6 December 1962, and with the title of Arquitetura from no.7 January 1963. Irregular periodicity until no.6, and monthly from no.7.
D.Magazine about design further education published three times a year by the Design Council, 28 Haymarket, London, SW1Y 4SU, tel (071)839-8000.
Designing. Magazine about design secondary education published three times a year by the Design Council, 28 Haymarket, London, SW1Y 4SU, tel (071)839-8000.
Design & Interiores. Projeto Editores Associados (Av. Dr. Arnaldo, 1947, São Paulo SP, Brasil, CEP 01255, tel (011)864-7477. telex (11)80461).
Design Come. Annual Journal of the Istitute Europeo di Design (Pz Diaz 6 Milano, Italia).
Design. Monthly magazine published by the Design Council, 28 Haymarket, London, SW1Y 4SU, tel (071)839-8000.
Esdinforma. Journal of the "Escola Superior de Desenho Industrial" (ESDI, Rua Evaristo da Veiga, 95, Rio de Janeiro, RJ, Brasil)
Habitat. Art and architecture magazine dedicated almost exclusively to the State of São Paulo published in Brazil from 1950 to 1965.
Innovation. The Journal of the Industrial Designers Society of America - IDSA.
Produto e Linguagem. Magazine from the extinct ABDI (Brazilian Association of Industrial Design).
Royal College of Art Prospectus 1988-89, 1990-91 (Royal College of Art, Kensington Gore, London, SW7 2EU, England, tel (071)584-5020).
The Big Paper. Magazine about design primary education published three times a year by the Design Council, 28 Haymarket, London, SW1Y 4SU, tel (071)839-8000.

Books and Thesis

ANDRADE, Manuel Caetano Q. **Educação pela Criatividade.** Recife: UFPE/Editora Universitária, 1987.

ARCHER, L. Bruce. **Design Awareness and Planned Creativity in Industry/Connaissance du design et la créativité planifiée dans l'industrie.** London: The Design Council, 1974.

ARCHER, L. Bruce. **Systematic Method for Designers.** London: Council of Industrial Design, 1965.

AZEVEDO, Wilton. **O que é design.** São Paulo: Brasiliense, 1988.

BARROSO NETO, Educardo et alii. **Estratégia de design para os países periféricos.** Brasília: CNPq/Coordenação Editorial, 1981.

BAYNES, Ken. **About Design.** London: The Design Council, 1976.

BOMFIM, Gustavo A. **Desenho Industrial: Proposta de Reformulação do Currículo Mínimo.** MSc Thesis, COPPE/UFRJ, Rio de Janeiro, 1978.

BOMFIM, Gustavo A. **Fundamentos de uma Metodologia para o Desenvolvimento de Produtos.** Rio de Janeiro: COPPE/UFRJ, 1977.

BONSIEPE, Gui. **A Tecnologia da Tecnologia.** São Paulo: Edgar Blucher, 1983.

BONSIEPE, Gui. **Diseño Industrial, Artefacto y Projecto.** Madrid: Alberto Corazon, 1975.

BONSIEPE, Gui. **Diseño Industrial, Tecnologia y Dependencia.** Mexico: Editorial Edicol, 1978.

BONSIEPE, Gui. **Metodologia Experimental: Desenho Industrial.** Brasília: CNPq/Coordenação Editorial, 1984.

BONSIEPE, Gui. **Teoria e Practica del Disegno Industriale.** Milano: Feltrinelli, 1975.

BONSIEPE, Gui. **Teoría y Práctica del Diseño Industrial.** Barcelona: Gustavo Gilli, 1976.

BRUAND, Yves. **Arquitetura Contemporânea no Brasil.** São Paulo: Editora Perspectivas, 1981.

CARDOSO, Fernando H. et alii. **Dependência y Desarrolo en America Latina.** Mexico: Siglo Veintiuno Editores, 1971.

CENNINI, Cennino. **Il Libro dell'Arte - The Craftsman's Handbook.** Translated by Daniel Thompson Jr. New York: Dover Publications, 1933.

CHAVES, Eloá Barbuda F. **Para melhor ler, escrever e falar.** Rio de Janeiro: Série Lendo 1, 1984.

CLOSE, David. **Interdisciplinary Ceramics.** London: Royal College Of Art, Design Education Unite, MA Thesis 1986.

CONWAY, Hazel (Ed.). **Design History: a students' handbook.** London: Allen & Unwin, 1987.

COSTA, Lúcio. **Sobre Arquitetura.** Porto Alegre: Centro dos Estudantes Universitários de Arquitetura, 1962.

DA VINCI, Leonardo. **Treatise on Painting (Codex Atlanticus, 117V/119V)** Translated by A. Philip McMahon. Princeton University Press, 1956.

DEANE, Phyllis. **The First Industrial Revolution.** Cambridge: Cambridge University Press, 1965.

DORFLES, Gillo. **Introdução ao Desenho Industrial.** Lisboa: Edições 70, 1990.

DUNN, Stwart. **Craft, Design and Technology.** London: Unwin Hyman, 1986.
DYSON, Anthony (Ed.) **Looking, Making and Learning: art and design in the primary school.** London: IEUL/Bedford Way Papers 36 - Kogan Page, 1989.
DYSON, Anthony (Ed.). **Art and Design Education: heritage and prospect.** London: IEUL/Bedford Way Papers 14, 1986.
EISENBERG, Peter. **Modernização sem Mudança: a indústria açucareira em Pernambuco 1840-1910.** Rio de Janeiro: Paz e Terra, 1977.
EISNER, E.W. **The Art of Educational Evaluation.** London: Falmer Press, 1985.
FERREIRA, Manoel Francisco. **O Desenho Industrial: sua importância para a arte decorativa.** "Docente Livre" Thesis, EBA/UFRJ, Rio de Janeiro, 1967.
FISHER, Ernest. **A Necessidade da Arte.** Rio de janeiro: Zahar, 1976.
FREITAG, Bárbara. **Escola, Estado e Sociedade.** São Paulo: Moraes, 1986.
FURTADO, Celso. **A Fantasia Organizada.** Rio de Janeiro: Paz e Terra, 1986.
GAMA, Ruy (Ed.). **História da Técnica e Tecnologia.** São Paulo: EDUSP, 1985.
GOMES, Luiz A.V.N. (Ed.) **Biônica e Atividade Projetual.** Rio de Janeiro: COPPE/UFRJ, 1985.
GOMES, Luiz A.V.N. **A Criatividade na Orientação Educacional dos Desenhistas Industriais.** MSc Thesis, COPPE/UFRJ, Rio de Janeiro, 1986.
GREEN, Peter. **Design Education.** London: Batsford, 1974.
GRIMPEL, Jean. **A Revolução Industrial da Idade Média.** Translated by Alvaro Cabral. Rio de Janeiro: Zahar, 1977.
HARTT, Frederick. **Art, A History of Painting, Sculpture, Architecture.** London: Thames & Hudson, 1976.
Her Majesty's Inspectorate (HMI) Series. **Curriculum Matters 2: The curriculum from 5-16.** London: HMSO, 1989, 2nd. edition.
Her Majesty's Inspectorate (HMI) Series. **Curriculum Matters 9: Craft, Design and Technology from 5-16.** London: HMSO, 1987.
HESKETT, John. **Design in Germany 1870-1918.** London: Trefoil Design Library, 1986.
HESKETT, John. **Industrial Design.** London: Thames & Hudson, 1980.
HUFFINGTON, Arianna S. **Picasso, creator and destroyer.** London: Weidenfeld and Nicolson, 1988.
ILLICH, Ivan. **After Deschooling, What?** London: Writers and Readers, 1974.
IINDUSTRIAL DESIGN CENTRE -IDC, **IDC 20 Years: Selected Papers.** Faculty on Design. Bombay: IDC, 1989.
ITTEN, Johannes. **Design and Form: the basic course at Bauhaus.** London: Thames & Hudson, 1975, revised edition.
JONES, Christopher. **Design Methods.** Chichester: Willey, 1970.
KANDINSKY, Wassily. **O Curso da Bauhaus.** Lisboa: Edições 70, 1987.
KANDINSKY, Wassily. **Ponto, Linha, Plano.** Lisboa: Edições 70, 1989.
LAMB, S.M. **Outline of Stratificational Grammar.** Washington: Georgetown University Press, 1966.
LANCASTER, John (Ed.) **Art, Craft and Design in the Primary School.** Corsham: National Society for Education of Art and Design - NSEAD, 1987,

2nd. edition.
LANGDON, Richard, Ken Baynes and Phil Roberts (Eds). **Design Policy: Design Education.** (London: The Design Council, 1984.)
LAWTON, Denis. **Class, Culture and Curriculum.** London: Routledge and Kegan Paul, 1975.
MACDONALD, Stuart. **The History and Philosophy of Art Education.** London: University of London Press, 1970.
MEDEIROS, Estevão Neiva de. **Uma proposta de Metodologia para Desenvolvimento de Produtos.**MSc Thesis, COPPE/UFRJ, Rio de Janeiro, , 1981.
MEDEIROS, Ligia M.S. de. **Towards Design Awareness in Brazil.** M.A. Dissertation, Department of Art and Design, Institute of Education, University of London, 1990.
OGDEN, C.K. & Richards, I.A. **The Meaning of Meaning.** London: Routledge and Kegan Paul, 1923.
OGDEN, C.K. **The Basic Dictionary.** London: Kegan Paul, Trench, 1932.
PACEY, Arnold. **El Labirinto del Ingenio: ideas e idealismo en el desarrolo de la tecnologia.** Translated by Homero A. Thevenet. Barcelona: Gustavo Gilli, 1980.
PACEY, Arnold. **The Maze of Ingenuity: ideas and idealism in the development of technology.** London: Allen Lane, 1974.
PEVSNER, Nikolaus. **Pioneers of Modern Design.** London: Peregrine Books, 1986 (first published by Faber & Faber under the title Pioneers of Medern Movement, 1936. Second Edition published by the Museum of Modern Art, New York, 1949. This revised and partly rewritten edition published in Pelikan Books, 1960. Reprinted with revisions, 1975). Spanish edition: **Pioneros del Diseño Moderno.** Buenos Aires: Editora Infinito, 1977. Portuguese editions: (a) **Os Pioneiros do Desenho Moderno.** Lisboa: Editora Ulisséia, 1962.(b) **Pioneiros do Desenho Moderno.** Lisboa: Editorial Martins Fontes, 1980.
PEVSNER, Nikolaus. **Origens da Arquitetura Moderna e do Design.** Lisboa: Editorial Martins Fontes, 1981.
POTTER, Norman. **What is a Designer: things, places, messages.** London: Studio Vista, 1969. Reading: Hyphen Press, 1980.
PYE, David. **The Nature and Aesthetic of Design.** London: The Herbert Press, 1978.
PYE, David. **The Nature and Art of Workmanship.** Cambridge: Cambridge University Press, 1968.
PYE, David. **The Nature of Design.** London: Studio Vista, 1964.
REDIG, Joaquim. **Sentido do Design.** Rio de Janeiro: Imprinta, 1983.
REDIG, Joaquim. **Sobre Desenho Industrial.** Rio de Janeiro: ESDI, 1977.
RICHTER, Irma A. (Ed.). **Selections from the Notebooks of Leonardo da Vinci.** Oxford: Oxford University Press, 1977.
ROSSI, Lia Monica. **Aspectos Ergonômicos da Sinalização: uma introdução à programação visual.** MSc Thesis, COPPE/UFRJ, Rio de Janeiro, 1981.
SALMON, Phillida. **Personal Construct Psychology and Education.** Padova: Universitá degli Studi di Padova, 1986.
SEKULES, Veronica (Ed.) **The University of East Anglia Collection.** University of East Anglia, 1984.
SOARES, Valdir F. **Desenho Industrial: Aspectos do Ensino e Atuação**

da Ergonomia no Desenvolvimento de Produtos. MSc Thesis, COPPE/UFRJ, Rio de Janeiro, 1982
SPARKE, Penny. **An Introduction to Design and Culture in the Twentieth Century.** London: Allen & Unwin, 1986.
TRIVEDI, Kirti. **Readings from Ulm: Selected articles from the Journal of HfG.** Bombay: Industrial Design Centre, 1989.
V&A Museum. **Indian Floral Patterns.** London: The Victoria and Albert Colours Books, Webb & Bower, 1985.
VASARI, Giorgio. **Vasari on Technique.** Translated by Louisa S. Maclehose. New York: Dover Publications, 1960.
WHITFORD, Frank. **Bauhaus.** London: Thames & Hudson, 1984.
WITTER, Geraldina Porto et alii. **Desenho Industrial: uma perspectiva educacional.** São Paulo: Arquivo do Estado de São Paulo; Brasília: CNPq/Coordenação Editorial, 1985.

Articles, Papers and Essays

ALLISON, Brian, The need for a balanced curriculum. (Paper presented at the Design Council Symposiun at Royal Society of Art, London, 1979).
Anais do IV ENDI. (Brasília: CNPq/Coordenação Editorial/ Belo Horizonte: APDI-MG, 1986).
ARCHER, L.Bruce, **Design in General Education** (London: Royal College of Art, discussion paper, June 1974).13pp.
ARCHER, L.Bruce, **Time for a Revolution in Art and Design Education** (London: Royal College of Art Papers, no.6, 1978).
ARCHER, L.Bruce, **How designers design** (London: Royal College of Art, unpublished papers,1984).5pp.
ARCHER, L.Bruce, **Design methods movement, 1954-1984** (London: Royal College of Art, unpublished paper, 1984).6pp.
ARCHER, L.Bruce, **The qualitative vs the quantitative** (London: Royal College of Art, unpublished paper, 1984).8pp.
ARCHER, L.Bruce, **Design education and society** (London: Royal College of Art, unpublished paper, 1984).6pp.
ASAKURA, Noami, *Kohsei: basic art and design course as a new professional centre.* **Abhikalpa 3** (Bombay: IDC, December 1986) pp.4-9.
ATHAVANKAR, Uday, *Structure form: a series based on perception and information processing,* **Abhikalpa 1,2,3** (Bombay: IDC, January 1984, December, 1984, December, 1986) pp7-10; pp.22-35; pp.26-35, respectively.
AZEVEDO, Wilton, *Silêncio e ruído no grafismo de Cage.* **Design&Interiores nº10** (São Paulo: Projeto Editores Associados, outubro de 1988) pp.106-7.
AZEVEDO, Wilton, *Smetak e suas esculturas sonoras,* **Design&Interiores nº13** (São Paulo: Projeto Editores Associados, abril de 1989) pp.100-5.
AZEVEDO, Witlon, *Do verbo ao gesto,* **Design&Interiores nº14** (São Paulo: Projeto Editores Associados, junho de 1989) pp.127-8.
BARBOSA, Ana Mae, *The underdevelopment of art education: political intervention in Brazil.* JMCRAE, Fall 1987, 5:1, pp.27-38.
BARTOLO, Carmelo di, *Didactics and research,* **Design Come 2** (Milano: Istituto Europeo di Design, 1983) p.19.

BAYNES, Ken, **Towards design curriculum** (London: Royal College of Art, Design Education Unit, introductory paper, April 1978) 12pp.
BAYNES, Ken. and Phil Riberts, *Design Education: the basic issues.* In Richard LANGDON, Ken Baynes and Phil Roberts (Eds). **Design Policy: Design Education**.(London:The Design Council,1984.) pp.8-13.
BAYNES, Ken. *Designerly Play.* In Anthony DYSON (Ed.), **Art and design Education: heritage and prospect** (London: IEUL-Bedford Way Papers 14, 1986) pp.64-72.
BAYNES, Ken. *The Basis of Designerly Thinking in Young Children.* In Anthony DYSON (Ed.), **Looking, Making and Learning: art and design in primary school** (London: IEUL-Bedford Way Papers 36/ Kogan Page, 1989) pp.70-85.
BAYNES, Ken, *A view of design education in Britain.* Journal of Art & Design Education, Vol.3, n.1, 1984, pp.5-18.
BERGMILLER, Karl Heinz, *A formação do desenhista industrial.* **Produto e Linguagem, nº1.** (São Paulo: Associação Brasileira de Desenho Industrial - ABDI, 1965).
BOMFIM, Gustavo A., *Identidade Cultural em Ulm.* **Design&Interiores nº20** (São Paulo: Projeto Editores Associados, setembro de 1990) pp.67-8.
BOMFIM, Gustavo A. & Lia Mônica Rossi, *Moderno e pós-moderno, a controvérsia.* **Design&Interiores nº19** (São Paulo: Projeto Editores Associados, julho de 1990) pp.20-6.
BOMFIM, Gustavo A., *A discussão da criação* , **Design&Interiores nº11** (São Paulo: Projeto Editores Associados, dezembro de 1988) pp.100-1.
BOMFIM, Gustavo A., *A subjetividade na berlinda.* **Design&Interiores nº14** (São Paulo: Projeto Editores Associados,junho de 1989) pp.29-30.
BOMFIM, Gustavo A., *A tecnologia irreversível.* **Design&Interiores nº10** (São Paulo: Projeto Editores Associados, outubro de 1988) pp.72-102.
BOMFIM, Gustavo A., **Contribuição ao tema: pós-graduação em desenho industrial.** (Position paper presented at the "workshop o ensino do desenho industrial nos anos 90. Florianópolis, July 1988).
BOMFIM, Gustavo A., *Os anos 80 sem rosto.* **Design&Interiores nº8** (São Paulo: Projeto Editores Associados, junho de 1988) pp.130-1.
BOMFIM, Gustavo A., *Questão da Linguagem.* **Design&Interiores nº11** (São Paulo: Projeto Editores Associados, dezembro de 1988) p.8.
BONSIEPE, Gui, *No futuro a reformulação.* **Design& Interiores nº12** (São Paulo: Projeto Editores Associados, fevereiro de 1989) p.125.
BONSIEPE, Gui, *O futuro do design na América Latina.* **Design& Interiores nº16** (São Paulo: Projeto Editores Associados, outubro de 1989) pp.139-141.
BONSIEPE, Gui, *As raízes no futuro.* **Arquitetura e Urbanismo**, abril/maio de 1987, pp.64-9.
BONSIEPE, Gui, *On golden things and other matters*, **Abhikalpa 3** (Bombay: IDC, December 1986) pp.21-3.
BONSIEPE, Gui, *Semantic Analysis.* In Kirt TRIVEDI(Ed.), **Readings from Ulm: selcted articles from the Journal of the Ulm school of design** (Bombay: Industrial Design Centre, 1989) pp.223-28
BONSIEPE, Gui, *Vivissecção do desenho industrial*, in Gui BONSIEPE, **Diseño Industrial, Artefacto y Proyecto**.(Madri: Alberto Corazon, 1975) pp.139-66.
BONSIEPE. Gui, *Bad taste, good taste, and distaste.* In Kirt TRIVEDI(Ed.),

Readings from Ulm: selcted articles from the Journal of the Ulm school of design (Bombay: Industrial Design Centre, 1989) pp.223-28.
BONSIEPE, Gui, *Diseñando el futuro, perspectivas del diseño industrial y gráfico en America Latina.* (Texto para el Congresso Internacional "Diseñando el Futuro", organizado por el Tecnologico de Monterrey, Mexico, 13-14 de abril de 1989) 14 pages.
BORGES, Adélia & João Carrascosa, *Gui Bonsiepe: Uma análise para reflexão.* **Design&Interiores, nº7** (São Paulo: Projeto Editores Associados, Abril de 1988) pp.55-9.
BORGES, Adélia, *Wollner: três décadas com bem mais do que marquinhas.* **Design&Interiores nº9** (São Paulo: Projeto Editores Associados, agosto de 1988) pp.86-93.
BORGES, Adélia, *Bienal, e a vontade virou fato...* **Design&Interiores nº20** (São Paulo: Projeto Editores Associados, setembro de 1990) pp.30-6.
BOTRILL, Pauline, **Computers in Art & Design** (London: Royal College of Art, discussion paper, 2nd November, 1984) 5pp.
BROWN, G. Baldwin. *Introductory Essay.* In Georgio VASARI. **Vasari on Technique**, edited by Prof. G.B. Brown (New York: Dover Publications, 1960) pp.1-22.
BROWN, Stephen, *Opening up design education.* **Design Studies.** Vol.10, n.1, January 1989 (Butterworth & Co. Publishers Ltd.) pp.4-10.
COGHILL, Vera, *Making and playing, the other basic skills: design education for the early years.* In Anthony DYSON (Ed.) **Looking, Makind and Learning: art and design in primary schools.** (London: IEUL-Bedford Way Papers 36 /Kogan Page, 1989) pp.56-69.
FRIEDLANDER, Uri, *An historical perspective of the new wave in design,* **Innovation 2,Vol.3**, 1984 (Ohio: The Journal of the Industrial designers Society of America, IDSA) pp.12-15.
GOMES, Luiz A.V.N., *A linguagem do design no Brasil.* **Design & Interiores nº 16**, (São Paulo: Editores Associados, outubro de 1989) pp.142-3.
GROS, Yochen, *Reporting progress through product language,* **Innovation 2, Vol.3**, 1984 (Ohio:The Journal of the Industrial Designers Society of America, IDSA)pp.10-1.
Grupo de Trabalho SESu/MEC. **Recomendações para a melhora do ensino superior do desenho industrial no Brasil** (Brasília, MEC, 2 de setembro de 1986).
HESKETT, John, *Industrial design.* In Hazel CONWAY (Ed.) **Design History: a students' handbook** (London: Allen and Unwin, 1987) pp.112-23.
KISTMANN, Virginia B., **O ensino do desenho industrial nos anos 90** (Position paper presented at the "workshop o ensino do desenho industrial nos anos 90. Florianópolis, July 1988).
KRIPPENDORF, Klaus and Reinhart Butter, *Product semantics: explring the symbolic qualities of form,* **Innovation 2, Vol.3**, 1984 (Ohio: The Journal of the Industrial designers Society of America,IDSA)p.4-9.
LEAL, Monica Ayub, *A Revolução do Design.* Folha de Pernambuco (Recife, terça-feira 18.10.88) p.2.
LENGUEL, Stefan and Attila Bruckner, *Tracking the eye movement as a key to semantic analysis,* **Innovation 2, Vol.3**, 1984 (Ohio: The Journal of the Industrial designers Society of America, IDSA) p.27.
LEON, Ethel, *ENDI: próxima parada São Paulo.* **Design&Interiores nº10** (São Paulo: Projeto Editores Associados, outubro de 1988) pp.112-3.

LEON, Ethel, *O senhor MASP*. **Design&Interiores nº18** (São Paulo: Projeto Editores Associados, março de 1990) pp.65-9.
LIMA, Edna L. C., **Guia do Estudante 88: avaliação dos cursos de desenho industrial, uma perspectiva externa**.(Recife: CEAC/UFPE, 1988).
MACEDO, Ivan A., **Anotações para uma política educacional de desenho industrial**.(Position paper presented at the "workshop o ensino do desenho industrial nos anos 90. Florianópolis, July 1988).
MASON, Rachel, *Art students in design departments: conflicts in attitudes, values and aims*. JMCRAE 12/85, 3:1, pp.76-84.
McCOY, Michael,*Defining a new functionalism in design*, **Innovation 2, Vol.3**, 1984 (Ohio: The Journal of the Industrial designers Society of America, IDSA) pp.16-20.
MOREIRA, Juan R.C., **Café sempre quente** (Recife: CDI/UFPE, a industrial product design report, 1987) Edited by L A.V.N.Gomes and L.M.S.Medeiros.
OLIVEIRA, Domingos Pessoa da Silva, *Informação profissional 1º e 2º grau: Desenho Industrial - criatividade e técnica*. O Cruzeiro (Caderno Pesquisa Escolar s/d, pp.3-5).
PANCHAL, Jayesh, *Product perception through sound*, **Abhikalpa 2** (Bombay: Industrial Design Centre, December, 1984) pp.16-21.
PAPANEK, Victor, *O que é design*. **Arquitetura, nº5** (Rio de Janeiro: IAB, Ano 1) pp.12-6.
PARSCHALK, Guinter, *O que é?*. **Design&Interiores nº11** (São Paulo: Projeto Editores Associados, dezembro de 1988) p.10.
PIGNATARI, Décio, *A Profissão do desenhista industrial*, **Produto e Linguagem nº1** (São Paulo: Associação Brasileira de Desenho Industrial - ABDI, 1965).
POOVAIAH, Ravi,*Notes on visual relation*, **Abhikalpa 3** (Bombay: IDC, December 1986) pp.14.
POOVAIAH, Rovi. *Visual characteristics through major movements in the history of graphic design*. **In IDC 20 Years: Selected Papers form the IDC Faculty on Design** (Bombay: Industrial Design Centre - IDC, December, 1989) pp.69-78.
RAO, A.G., *Expression as basis of new form in industrial design*, **Abhikalpa,1** (Bombay: IDC, January, 1984) pp.2-6.
REDIG, Joaquim, *O mestre Aloísio Magalhães*, **Design&Interiores nº12** (São Paulo: Projeto Editores Associados, fevereiro de 1989) p.102-7.
REDIG, Joaquim, *Para o ensino do design no Brasil*. **Design&Interiores nº8** (São Paulo:Projeto Editores Associados, junho de 1988) pp.103-18.
REDIG, Joaquim, *Um encontro histórico*. **Design&Interiores nº10** (São Paulo: Projeto Editores Associados, outubro de 1988) pp.108-11.
ROSSI, Lia M., *Design e gosto*, **Design&Interiores nº17** (São Paulo: Projeto Editores Associados, dezembro de 1989) p.124.
ROSSI, Lia M., **Utopias e Realidades**- Position paper presented at the "workshop o ensino do desenho industrial nos anos 90". Florianópolis, July 1988).
ROSSI, Lia M., **Programação Visual: um currículo em discussão** - Paper presented in the 3º ENDI (Bauru, São Paulo, 1983); 3º Congresso da ALADI (Rio de Janeiro, 1984), and in the Seminar *Desenho Industrial: formação profissional* (Recife, 1984).

ROYAL COLLEGE OF ART, **Design in General Education**: a survey based on a new report published by the RCA. (London: RCA Undated) 25pp.
SOUZA, Pedro Luiz, *Bergmiller, o mestre do racionalismo brasileiro*, **Design&Interiores nº20** (São Paulo: Projeto Editores Associados, setembro de 1990)pp60-6.
SOUZA, Pedro Luiz, *O preço da sobrevivência*, **Esdinforma nº1** (Rio de Janeiro, CTC/UERJ - Escola Superior de Desenho Industrial, Ano 1, 1988).
STEPHAN, Auresnede P., **Formação de docentes**.- Position paper presented at the "workshop o ensino do desenho industrial nos anos 90. Florianópolis, July 1988).
TRIVEDI, Kirti, *Understanding basic design*, **Abhikalpa 3** (Bombay: Industrial Design Centre, December 1986) p.1.
TWYMAN, Michael., *The graphic representation of language*. **Information Design Journal 3**, 1982, pp.1-22.
WHITE Jr., Lynn. *Tecnologia e Invenções na Idade Média**, (Translated by Sylvia Ficher and Ruy Gama). In Ruy GAMA (Ed.), **História da Técnica e Tecnologia** (São Paulo: EDUSP, 1985) pp.88-115. * Original title: "Technology and Invention in the Middle Ages", Speculum - a Journal of Medieval Studies, no.2, April, 1940.
WOLLNER, Alexandre, *Origem e desenvolvimento do desenho industrial*, **Produto e Linguagem, nº1**(São Paulo: Associação Brasileira de Desenho Industrial - ABDI, 1965)
YOUNG, Lucie, *Down with industrial design*, **Design 481** (London: The Design Council, January, 1989) pp.50-1.

Documents

Carta da Associação Nacional de Desenho Industrial, ANDI-BR. S/D. 2pp.
Carta de Canasvieiras. Documento Final do Workshop O Ensino do Desenho Industrial nos anos 90. Laboratório Brasileiro de Desenho Industrial, Florianópolis, Canasvieiras, 29 de julho de 1988. 10pp.
Constituição do Grupo de Trabalho com a finalidade de avaliar o ensino superior de Desenho Industrial. Diário Oficial, segunda-feira, 2 de junho de 1986. SESu/MEC, portaria nº72, de 29 de maio de 1986.
Currículo Mínimo para o Curso de Desenho Industrial. Diário Oficial, MEC, CEF, SESu. Segunda-feira, 22 de junho de 1987, Seção I, 9635.
IV ENDI. Documentos dos Grupos de Trabalho 2 (pp.11-2) e 6 (pp.23-4).
Lista dos Trabalhos apresentados no Workshop Internacional: o ensino do design industrial. Laboratório Brasileiro de Desenho Industrial, Florianópolis, Canasvieiras, 9 a 14 de abril de 1990, 7pp.
Ofício 92-90DD, 23.05.90. Do Chefe do Departamento de Desenho da Universidade Federal de Pernambuco, contendo: (i) Plano de Ação Plurianual do Departamento de Desenho; (ii) fotocópia das páginas 110 a 121 do Regimento da Universidade Federal de Pernambuco; (iii) relação nominal dos professores do Departamento de Desenho; e quadro de língua estrageiras faladas pelo corpo docente. 20pp.
Projeto de Lei: regula o exercício da profissão do "designer"(Ger 20.01. 0050.5 - Set/85). Camâra dos Deputados, Sala de Seções em 24 de

agosto de 1989. Deputado Maurílio Ferreira Lima (PMDB/PE). 8pp.

Projeto e Resolução nº2 de 16 de Julho de 1987 do Conselho Federal de Educação. Fixa os domínios de conteúdo e duração para o Curso de Desenho Industrial e suas habilidatações Projeto de Produto e Programação Visual. Ministério de Educação, MEC. Plenário do CFE, Sala barreto Filho, 29 de janeiro de 1987).

Proposta para Currículo Mínimo para o Desenho Industrial Ministério da Educação e Cultura-MEC, Conselho Federal de Educação-CEF e Secretaria do Ensino Superior -SESu., Parecer 62-87, Processo 563-81, aprovado em 29.01.87.

Relatório Final do Grupo de Trabalho de Desenho Industrial, criado pela protaria nº072 de 29.05.86, da SESu/MEC. Ofício Circular nº211/86 - GAB/SESu/MEC, 10 de setembro de 1986. 16pp.

World Directory of Schools Offerring Design Education. ICSID Congress, Nagoya, Japan, October, 1989. 10pp.

Workshop Internacional: o ensino do design industrial. Laboratório Brasileiro de Desenho Industrial, Florianópolis, Canasvieiras, 9 a 14 de abril de 1990, 3 pp.


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES


PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES